1. Procalcitonin is a serum biomarker that helps distinguish bacterial infection from other causes of infection or inflammation. In clinical practice the signs and symptoms of bacterial versus non-bacterial acute exacerbations of COPD (AECOPD) overlap however evidence suggests that bacteria are only found to be the primary cause in 50% of cases. In patients with community-acquired pneumonia, procalcitonin is about 65 to 70 percent accurate in distinguishing bacterial from viral pathogens. When used as part of an algorithm in combination with clinical judgment in patients with lower respiratory tract infections, procalcitonin has been shown to reduce unnecessary antibiotic use by about 25 to 50 percent without increasing morbidity or mortality. Recent evidence highlights several limitations suggesting a more measured approach to the use of procalcitonin in AECOPD. Procalcitonin assays are not available at all institutions. Because the usefulness of the assay is dependent on rapid turnaround time, testing should only be obtained at centers where results can be obtained in a timely manner. A growing amount of evidence points to false positives and false negatives and in patients with severe infections, PCT based therapy did not safely reduce antibiotic exposure because prompt initiation of antibiotherapy in this population improves 3-month survival regardless of the level of PCT. The take home message is for selected patients who are clinically stable and lack major comorbidities, we consider withholding antibiotics when the clinical presentation and/or laboratory results strongly suggest a viral infection and the procalcitonin level is <0.25. The use of PCT levels should never trump good clinical judgement in a frail older population.

2. Procalcitonin can be used as part of the AECOPD workup, should be obtained within 24hrs of start of symptoms, only costs $25 and can be added to the CBC and CXR. So it helps add confidence to withhold antibiotics in a patient with new or worsening respiratory sx, afebrile, no leukocytosis and a positive CXR for infiltrates with PCT level <0.25 who is relatively stable without severe comorbidities.

3. Remind patients that smoking cessation still has the greatest capacity to influence the course of someone’s COPD.

4. Spirometry is REQUIRED to make the diagnosis of COPD. If it has not been done then it needs to be as it will guide treatments and recommendations

5. Clinical trials have shown a greater effect on lowering exacerbation rates with LAMAs over LABAs

6. Several GOLD guidelines to help guide txts but generally it is short acting bronchodilators for rescue therapy, LAMAs first for maintenance then LABAs then potentially add ICS, combo LAMA + LABA is shown to be more effective than being on one or increasing the dose of one

7. What about Inhaled Corticosteroids (ICS)?
   a. COPD inflammation has less responsiveness to ICS
   b. ICS can be helpful to reduce frequency of exacerbations and improve quality of life but only if their FEV1 < 60% predicted
   c. ICS is associated with an increased risk of pneumonia
d. Recent data suggests that LAMA+LABA has less adverse events than LAMA+LABA+ICS

e. Eosinophils can be used as a biomarker to help determine if ICS is good for your patient, recent data suggests that ICS are not effective in pts with eosinophil counts<100 and have the most benefit if the counts are >300

8. What about Azithromycin use? Azithromycin at 250mg per day or 500mg 3x/week in patients who are having frequent exacerbations and/or hospitalizations has been shown to reduce these events. However, you need to remember that it is a/w increased bacterial resistance and worsening hearing, it is less beneficial in active smokers, and there is no data beyond a year of treatment showing either the efficacy or safety concerns. Consider reserving this treatment to end-stage COPD patients who keep having exacerbations requiring hospitalization or who are having frequent exacerbations, maybe once a month, and who have quit smoking. Evidence suggests that 250mg or 500mg 3x/week to reduce pill burden is considered the same efficacy as daily dosing.