**Approach to Difficult Asthma**

**Step 1: Confirm an asthma diagnosis and identify difficult to treat asthma**
- Obtain pre and post bronchodilator spirometry - need at least 12% and 200mL improvement in FEV1

**Asthma Mimicker with normal spirometry: Vocal Cord dysfunction**
- Think about - symptoms out of proportion to FEV1, atypical spirometry, poor response to meds
- Symptoms: cannot get air in, dry cough, chest tightness below the neck
- Long history of “asthma exacerbations” on high doses of medications and poor response
- Episodic cough and dyspnea around irritants- perfumes, etc..
- Flat inspiratory loop on spirometry
- Diagnose with laryngoscopy

**Step 2: Differentiate severe asthma from milder asthma**
- Requires treatment with high dose ICS plus a second controller

Compliance is complicated- don’t like taking inhalers, expensive, sign of weakness, forgetfulness, they don’t work. Watch the patient use their inhaler to ensure they are doing it right!

**Comorbidities that make asthma worse:**
- obesity
- GERD
- Chronic sinusitis

**Step 3: Determine whether severe asthma is controlled or uncontrolled**

Any one of the following qualifies as uncontrolled:
- Symptom control: ACQ >1.5 or ACT <20 over 3 months
- Exacerbations: 2 or more steroid bursts OR 1 hospitalization in the last year
- Airflow limitation: FEV1 <80% predicted with reduced ratio

Consider biomarkers to identify presence of Type-2 cytokine signature

**Th2-Hi**
- Atopy, high eosinophils, high exhaled NO
- Respond to inhaled corticosteroid

**Type 2-Lo**
- Absence of atopy, eos, NO
- Associated with poor corticosteroid response
- late onset, obesity- responds to weight loss

Maximize corticosteroids for type-2 Hi (atopic, high eos, high FeNO). For those who remain uncontrolled, consider alternatives such as T2 targeted therapies (anti IL-4 dupilumab, anti-IL-5 mepolizumab and reslizumab) and diagnostic biopsy if needed.