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Clinical Research Summary:
BRONCHIECTASIS DIAGNOSES



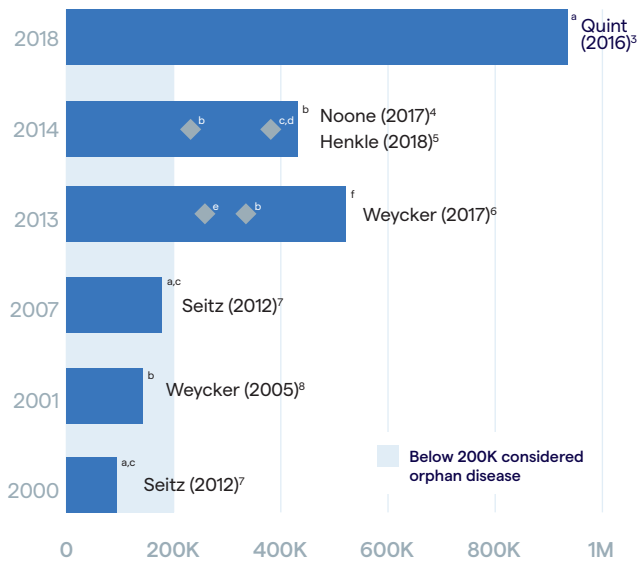
INCREASES IN BRONCHIECTASIS DIAGNOSES OVER DECADE

Analysis of published data demonstrates increasing prevalence of diagnosed, symptomatic bronchiectasis (BE), based on government and private payer healthcare claims¹⁻⁸

ANALYSIS

Published data demonstrates increasing prevalence of diagnosed, symptomatic bronchiectasis, based on government and private payer healthcare claims.^{2,8}

BRONCHIECTASIS (NON-CFBE) DIAGNOSIS PREVALENCE (US)

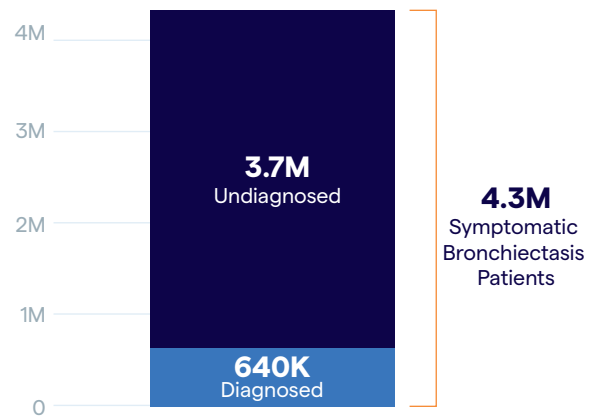


- a. Leverages data on non-CF BE prevalence by age applied to US census data
- b. Patients meeting criteria indicating a BE diagnosis: 2+ claims a specified number of days apart, or a single claim with a CT scan within a certain number of days, or a hospitalization with a BE diagnosis; specific measure required 2 BE claims ≥ 90 days apart
- c. Medicare or ≥ 65 years of age patients only
- d. Patients with a health care claim with an attached BE diagnosis from a pulmonologist over a number of years
- e. Patients with a health care claim with an attached BE diagnosis in a single year
- f. Patients with a health care claim with an attached BE diagnosis over a number of years

Undiagnosed bronchiectasis (BE) remains a burden with estimates indicating only 15% of those with symptomatic BE identified in 2018.

- 4.3M are symptomatic²
 - 3.7M go undiagnosed
 - 640K are diagnosed
- 85K were diagnosed (incidence)²
- 24M are asymptomatic^{2,9}

BRONCHIECTASIS (SYMPTOMATIC) PREVALENCE (US, 2018)²

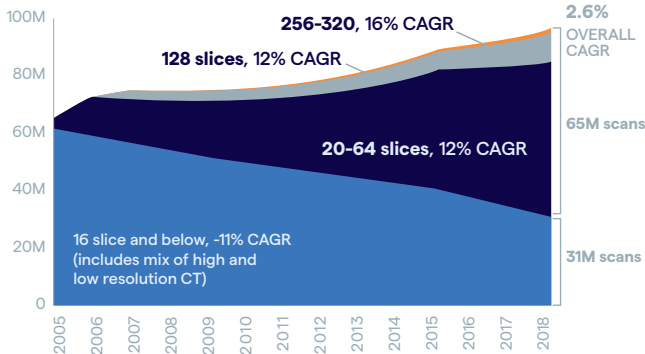


* 2018 estimates based on claims data analysis²

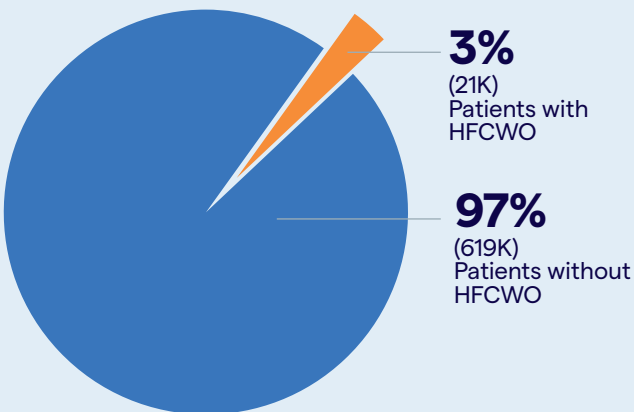
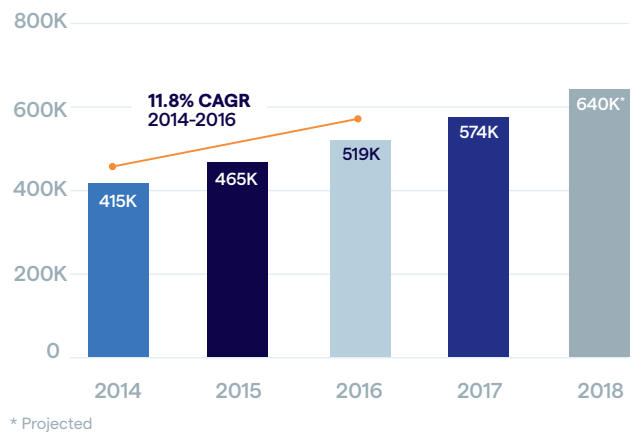
WHAT HAS CHANGED?

The growth in use of high resolution CT (HRCT) scans has driven growth in bronchiectasis (BE) diagnoses.²

CT SCAN VOLUME BY NUMBER OF SLICES (US)²



BRONCHIECTASIS (SYMPTOMATIC) DIAGNOSES, PREVALENCE ESTIMATES (US)²



WHO RECEIVES HFCWO?

- Of the estimated 640,000 diagnosed, symptomatic BE patients in 2018, only 3% of these are estimated to have a high frequency chest wall oscillation (HFCWO) device²
- Using HFCWO as part of prescribed BE treatment has demonstrated a reduction in hospital visits, related healthcare usage (e.g., emergency room trips), and prescriptions/antibiotic use, and an improvement in quality of life.¹⁰

CONCLUSION

Data demonstrates increasing diagnoses of symptomatic bronchiectasis (BE). Many more patients suffering from BE could benefit from airway clearance therapy using an HFCWO device. HFCWO helps clear retained airway secretions that otherwise may lead to repeated, serious lung infections in BE patients.²¹⁰



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- ² Hillrom Market Research Report, 2018.
- ³ Quint, et al. Changes in the incidence, prevalence and mortality of bronchiectasis in the UK from 2004–2013: a population based cohort study. 2016. *European Respiratory Journal*, 47: 186–193. DOI: 10.1183/13993003.01033-2015.
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- ⁷ Seitz, et al. Trends in Bronchiectasis Among Medicare Beneficiaries in the United States, 2000 to 2007. 2012. *Chest*. Volume 142, Issue 2, Pages 432–439. DOI: 10.1378/chest.11-2209.
- ⁸ Weycker, et al. Prevalence and Economic Burden of Bronchiectasis, *Clinical Pulmonary Medicine*. 2005.
- ⁹ Estimate leverages prevalence data (from Tan, et al, 2016) of asymptomatic and minimally symptomatic respiratory disease patients that would otherwise be undiagnosed through HRCT scans, age ≥ 40 years, applied to US census data. Tan, et al. Findings on Thoracic Computed Tomography Scans and Respiratory Outcomes in Persons with and without Chronic Obstructive Pulmonary Disease: A Population-Based Cohort Study. 2016. *PLOS ONE*. November 18, 2016. DOI:10.1371/journal.pone.0166745.
- ¹⁰ Sievert C, Beaner C. Using high-frequency chest wall oscillation in a bronchiectasis patient population: an outcomes-based case review. *Respiratory Therapy*. 2016;11(4).

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