The Burden of Nocturnal Symptoms in Patients with Chronic Obstructive Pulmonary Disease: Results of a Real-World Survey in the USA

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| Variable name | Physician or patient reported | Variable type | Nominal response type | Timeframe of data collection |
|----------------|--------------------------------|---------------|-----------------------|-----------------------------|
| *Measures of symptom burden, frequency and impact on daily life* | | | | |
| Time of the day that a patient’s COPD bothers them | Physician/patient | Nominal | 1) Daytime only  
2) Primarily daytime with occasional night-time  
3) Equally both day and night  
4) Primarily night-time with occasional daytime  
5) Night-time only | Based on physician and patient recall |
| Frequency of patient’s symptoms on awakening | Physician/patient | Nominal | 1) Not at all  
2) Less than once a week  
3) Once or twice a week  
4) 3 to 6 times a week  
5) Every day  
6) Don’t know | Based on physician and patient recall over the past 4 weeks |
| Frequency of patient’s symptoms during the day | Physician/patient | Nominal | 1) Not at all  
2) Less than once a week  
3) Once or twice a week  
4) 3 to 6 times a week  
5) Every day  
6) Don’t know | Based on physician and patient recall over the past 4 weeks |
| Frequency of patient’s night-time symptoms | Physician/patient | Nominal | 1) Not at all  
2) Less than once a week  
3) Once or twice a week  
4) 3 to 6 times a week  
5) Every day  
6) Don’t know | Based on physician and patient recall over the past 4 weeks |
| Variable name                                                                 | Physician or patient reported | Variable type | Nominal response type                                                                 | Timeframe of data collection |
|------------------------------------------------------------------------------|-------------------------------|---------------|--------------------------------------------------------------------------------------|-----------------------------|
| Impact of COPD on day-to-day activities, personal relationships, leisure, work, sleep | Physician/patient             | Nominal       | 1) No impact  
2) Rarely impacts  
3) Occasionally impacts  
4) Frequently impacts  
5) Constantly impacts | Based on physician and patient recall |
| Jenkins Sleep Evaluation Questionnaire (JSEQ)                                | Patient                       | Numeric       | 1) Have trouble falling asleep?  
2) Wake up several times per night but did not have trouble falling asleep again?  
3) Wake up one or more times per night (including waking far too early) and have trouble falling asleep again?  
4) Wake up after your usual amount of sleep feeling tired or worn out? | Patient recall over past 4 weeks |

**Validated measures of sleep disturbance, health status and work productivity and activity impairment**

| Jenkins Sleep Evaluation Questionnaire (JSEQ)                                | Patient                       | Numeric       | 1) Have trouble falling asleep?  
2) Wake up several times per night but did not have trouble falling asleep again?  
3) Wake up one or more times per night (including waking far too early) and have trouble falling asleep again?  
4) Wake up after your usual amount of sleep feeling tired or worn out? | Patient recall over past 4 weeks |
| Work Productivity and Activity Impairment Questionnaire (WPAI)              | Patient                       | Numeric       | The WPAI yields four types of scores:  
1) Absenteeism  
2) Presenteeism  
3) Work productivity loss (overall work impairment/absenteeism plus presenteeism)  
4) Activity impairment | On survey date with recall of last 7 days |
| Variable name                  | Physician or patient reported | Variable type | Nominal response type                                                                 | Timeframe of data collection |
|-------------------------------|-------------------------------|---------------|--------------------------------------------------------------------------------------|-------------------------------|
| EQ-5D-3L utility score        | Patient                       | Numeric       | 3-point rating scale on: 1) Mobility  2) Self-care  3) Usual activities  4) Pain/discomfort  5) Anxiety/depression | On survey date                |
| EQ-5D VAS                     | Patient                       | Numeric       | N/A                                                                                  | On survey date                |

**Physician-reported reason for drug choice**

| Reason for drug choice         | Physician                     | Nominal       | 1) Immediate onset of action  2) Provides sustained 24-h symptom relief  3) Improvement in shortness of breath  4) Improvement in daytime symptomatic relief  5) Improvement in night-time symptomatic relief  6) Improvement in symptomatic relief on awakening  7) Prevents/reduces frequency of exacerbations  8) Reduces need for rescue medication  9) Clinically relevant improvement in lung function test values  10) Improvement in exercise tolerance  11) Reduces levels of inflammation  12) Reduces response to allergic triggers  13) Penetration of drug in the lower and peripheral airways  14) Well-tolerated side-effect profile  15) Good cardiovascular profile  16) Avoids using high-dose inhaled steroid medications  17) Avoids using LABA medication  18) Limits the use of additional oral steroid medication | On survey date                |
| Variable name | Physician or patient reported | Variable type | Nominal response type | Timeframe of data collection |
|---------------|-------------------------------|---------------|-----------------------|-----------------------------|
| 19) Maximizes patient compliance |
| 20) Ease of use/suitability of inhaler device |
| 21) Once-daily dosing |
| 22) Acts as both a reliever and as maintenance therapy |
| 23) Option to upward or downward titrate when required |
| 24) Drug familiarity and personal experience |
| 25) In accordance with clinical guidelines |
| 26) Request by patient |

**Physician-reported reason for drug choice and drug dosing schedule**

| Reason for drug choice | Physician | Nominal | See above | On survey date |
|------------------------|-----------|---------|-----------|----------------|
| Frequency of maintenance daily dosing (drug level) | Physician | Nominal | 1) Once-daily 2) Twice-daily | On survey date from available medical records |
| Time of day of dosing | Patient | Nominal | 1) As soon as I wake up 2) During the morning 3) At lunchtime 4) During the afternoon 5) During the evening 6) Just before I go to bed 7) During the night | On survey date |
| Frequency of maintenance daily dosing | Patient | Nominal | Frequency count of option above | On survey date |
| Variable name                                      | Physician or patient reported | Variable type | Nominal response type                                    | Timeframe of data collection          |
|---------------------------------------------------|-------------------------------|---------------|----------------------------------------------------------|---------------------------------------|
| **Patient demographics and comorbidities**        |                               |               |                                                         |                                       |
| Physician setting                                 | Physician                     | Nominal       | 1) PCP  
2) Pulmonologist/respiratory specialist               | On survey date                        |
| Age (year)                                        | Physician                     | Numeric       | N/A                                                      | On survey date                        |
| Sex                                               | Physician                     | Nominal       | 1) Male  
2) Female                                             | On survey date                        |
| Body mass index (BMI) (kg/m$^2$)                   | Physician                     | Numeric and nominal | 1) <18.5  
2) 18.5–24.9  
3) 25.0–26.9  
4) 27.0–29.9  
5) 30+                                                   | Based on available medical records |
| Employment status                                 | Physician                     | Nominal       | 1) Working full-time  
2) Working part-time  
3) On long-term sick leave  
4) Homemaker  
5) Student  
6) Retired  
7) Unemployed  
8) Don’t know                                         | On survey date                        |
| Unemployed/retired/sick leave due to COPD          | Physician                     | Nominal       | 1) Yes  
2) No  
3) Don’t know                                              | On survey date                        |
| Variable name                        | Physician or patient reported | Variable type | Nominal response type                                                                 | Timeframe of data collection                  |
|-------------------------------------|-------------------------------|---------------|--------------------------------------------------------------------------------------|-----------------------------------------------|
| Smoking status (tobacco)            | Physician                     | Nominal       | 1) Current smoker  
2) Ex-smoker  
3) Never smoked  
4) Don’t know                                                                 | Based on available medical records           |
| Caregiver status                    | Physician                     | Nominal       | Whether anyone is responsible for patient’s daily needs:  
1) Yes  
2) No  
3) Don’t know                                                                 | Based on available medical records           |
| Current comorbidities               | Physician                     | Nominal       | Pre-coded list of current comorbidities                                               | Based on available medical records           |
| Charlson Comorbidity Index (CCI)    | Physician                     | Numeric       | Calculated score based on selected current comorbidities                              | Based on available medical records           |

*COPD* chronic obstructive pulmonary disease; *EQ-5D(-3L)* EuroQoL 5-Dimension (3-Level); *LABA* long-acting β2 agonist; *N/A* not applicable;  
*PCP* primary care physician; *VAS* Visual Analog Scale