Personal Level screening for COPD and COPD Patient Management Survey

# Personal Level screening for COPD

## Data pre-prepossessing

### Demographic and other characteristics of participants

| **Characteristic** | **N = 250**1 |
| --- | --- |
| Age |  |
| 18-30 | 59 (24%) |
| 31-45 | 40 (16%) |
| 46-60 | 81 (32%) |
| 60-70 | 39 (16%) |
| 70+ | 31 (12%) |
| Gender |  |
| Female | 125 (50%) |
| Male | 125 (50%) |
| Education |  |
| 5th class | 1 (0.4%) |
| B.Pharm | 2 (0.8%) |
| Diploma | 35 (14%) |
| FCPS | 1 (0.4%) |
| Graduate | 15 (6.0%) |
| H.S.C | 2 (0.8%) |
| High school | 28 (11%) |
| Higher secondary | 13 (5.2%) |
| M.Pharm | 4 (1.6%) |
| Masters | 36 (14%) |
| MBBS | 7 (2.8%) |
| No formal education | 16 (6.4%) |
| PhD | 3 (1.2%) |
| Post Graduate | 27 (11%) |
| Primary level | 13 (5.2%) |
| Secondary level | 15 (6.0%) |
| Undergraduate | 32 (13%) |
| Profession |  |
| Actor | 2 (0.8%) |
| Auto rickshaw driver | 1 (0.4%) |
| Beautician | 1 (0.4%) |
| Business | 27 (11%) |
| Carpenter | 1 (0.4%) |
| Chemist | 1 (0.4%) |
| Construction worker | 1 (0.4%) |
| Doctor | 5 (2.0%) |
| Domestic Worker | 2 (0.8%) |
| Driver | 1 (0.4%) |
| Engineer | 3 (1.2%) |
| Enteprenure | 1 (0.4%) |
| Factory worker | 1 (0.4%) |
| Farmer | 14 (5.6%) |
| Fisherman | 2 (0.8%) |
| Formar farmer | 1 (0.4%) |
| Garment Worker | 2 (0.8%) |
| Graduate Assistant | 1 (0.4%) |
| Home maker | 6 (2.4%) |
| Housemaid | 2 (0.8%) |
| Housewife | 10 (4.0%) |
| Intern Doctor | 1 (0.4%) |
| Jobless | 1 (0.4%) |
| Laborer | 1 (0.4%) |
| Librarian | 1 (0.4%) |
| Musician | 1 (0.4%) |
| Nurse | 1 (0.4%) |
| Office assistant | 2 (0.8%) |
| Officer,Supply chain | 1 (0.4%) |
| Other | 10 (4.0%) |
| Peon | 2 (0.8%) |
| Pharmacist | 3 (1.2%) |
| Private service | 26 (10%) |
| QA manager | 1 (0.4%) |
| Retired | 20 (8.0%) |
| Retired Army officer | 1 (0.4%) |
| Retired banker | 1 (0.4%) |
| Retired day laborer | 1 (0.4%) |
| Retired factory worker | 1 (0.4%) |
| Retired govt officer | 3 (1.2%) |
| Retired Hawker | 1 (0.4%) |
| Retired policeman | 1 (0.4%) |
| Retired rickshaw puller | 1 (0.4%) |
| Retired security guard | 1 (0.4%) |
| Retired tecaher | 3 (1.2%) |
| Rickshaw puller | 2 (0.8%) |
| Salon Owner | 1 (0.4%) |
| Shop owner | 1 (0.4%) |
| Shopkeeper | 6 (2.4%) |
| Small Business | 1 (0.4%) |
| Software Engineer | 1 (0.4%) |
| Street vendor | 1 (0.4%) |
| Student | 33 (13%) |
| Tailor | 5 (2.0%) |
| Teacher | 29 (12%) |
| How many months in the last year have you had bronchitis or chronic coughing with sputum from the chest? | 6.0 (3.3) |
| Unknown | 2 |
| For how many years you had bronchitis or chronic coughing with sputum from the chest? | 15 (11) |
| Unknown | 2 |
| Have you feel short of breath over the past 12 months? |  |
| Maybe | 2 (0.8%) |
| No | 95 (38%) |
| Yes | 153 (61%) |
| Do you have any member in your family have experienced the same condition? (Yes) | 142 (57%) |
| Do you have a previous history of smoking? |  |
| No | 118 (47%) |
| Yes | 73 (29%) |
| Yes and on going | 59 (24%) |
| Do you kNow about COPD and its affect in your quality of life? |  |
| I can't go outside without mask due to severe dust allergy. It always triggers asthma.I am becoming unsocial. | 1 (0.4%) |
| Know the pros n cons | 1 (0.4%) |
| No | 9 (3.6%) |
| Not aware | 60 (24%) |
| Somewhat aware | 64 (26%) |
| Yeah i know as my father in law passed away due to this disease | 1 (0.4%) |
| Yes | 32 (13%) |
| Yes, affects outdoor activities | 4 (1.6%) |
| Yes, but limited knowledge | 1 (0.4%) |
| Yes, but not well-informed. | 2 (0.8%) |
| Yes, difficulty in breathing affects work | 1 (0.4%) |
| Yes, due to this problem I do skip visit places those have dry weather | 1 (0.4%) |
| Yes, Frequent hospital visit | 1 (0.4%) |
| Yes, Frequent lung infection | 1 (0.4%) |
| Yes, fully aware | 53 (21%) |
| Yes, I am aware | 7 (2.8%) |
| Yes, impacts life quality | 1 (0.4%) |
| Yes, it worsen mobility | 1 (0.4%) |
| Yes, requires frequent care | 1 (0.4%) |
| Yes, severe breathing issue | 1 (0.4%) |
| Yes, severely affects movement, or limited movement | 2 (0.8%) |
| Yes, Worsening breathing capacity | 1 (0.4%) |
| Yes, worsening lung function | 1 (0.4%) |
| Yes. It affects the sleep cycle | 3 (1.2%) |
| 1n (%); Mean (SD) | | |

### Summary statistics of “Duration of having bronchitis or chronic coughing with sputum from the chest in the last year” and “Duration of having bronchitis or chronic coughing with sputum from the chest”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 1: Summary statistics of duarion of bronchitis or chronic coughing with sputum from the chest (in months)   | Variable | Min | Max | Mean | SD | | --- | --- | --- | --- | --- | | For how many years you had bronchitis or chronic coughing with sputum from the chest? | 0 | 40 | 14.76 | 10.96 | | How many months in the last year have you had bronchitis or chronic coughing with sputum from the chest? | 0 | 12 | 5.99 | 3.34 | |

|  |  |  |  |
| --- | --- | --- | --- |
| |  | | --- | | (a) Variable 1 | | |  | | --- | | (b) Variable 2 | |

Figure 1: Frequency histogram of duration of having bronchitis or chronic coughing

### Do you have previous history of vaccination? if yes, write the name of vaccine

| Do you have previous history of vaccination? | N | Percent (out of 250) |
| --- | --- | --- |
| No | 65 | 26 |

| If yes, write the name of vaccine | N | Percent (out of 250) |
| --- | --- | --- |
| Covid | 70 | 28.0 |
| Influenza | 64 | 25.6 |
| Pneumococcal | 56 | 22.4 |
| Titenus | 2 | 0.8 |
| DPT | 2 | 0.8 |
| HPV | 2 | 0.8 |
| Morderna | 2 | 0.8 |
| TT | 2 | 0.8 |
| DPT | 1 | 0.4 |
| All the vaccines available in bd | 1 | 0.4 |
| EPI | 1 | 0.4 |
| Flu vaccine | 1 | 0.4 |
| Hepatitis B | 1 | 0.4 |
| Pnemococcal | 1 | 0.4 |
| Titenus | 1 | 0.4 |
| Yes | 1 | 0.4 |
| Figure 2: Distribution of vaccination history | | |

### Which medication you are taking for COPD?

| Medication taking for COPD?` | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| Corticosteroids | 81 | 32.4 |
| Oxygen therapy | 55 | 22.0 |
| Bronchodilators | 47 | 18.8 |
| Leukotriene receptor antagonists | 33 | 13.2 |
| None | 33 | 13.2 |
| Phosphodiesterase Inhibitors | 29 | 11.6 |
| MethylXanthines | 18 | 7.2 |
| Beta-2 Agonist | 13 | 5.2 |
| Mucolytic drugs | 13 | 5.2 |
| Combination therapy | 11 | 4.4 |
| Antibiotics | 8 | 3.2 |
| Xanthines | 8 | 3.2 |
| Anti cholinergic | 6 | 2.4 |
| Long acting beta agonists | 6 | 2.4 |
| Long-acting selective β-adrenoceptor stimulants | 6 | 2.4 |
| leukotriene receptor antagonists | 4 | 1.6 |
| short-acting beta-2 adrenergic agonist | 4 | 1.6 |
| Long acting Selective Beta-2 Adrenoceptor Stimulants | 2 | 0.8 |
| Theophylline | 2 | 0.8 |
| selective beta-2-adrenoreceptor agonists | 2 | 0.8 |
| Antihistamine | 1 | 0.4 |
| Beta-2 Agonist + Anticholinergic + Corticosteroid ( Combination therapy) | 1 | 0.4 |
| Beta-2 adrenergic agonist | 1 | 0.4 |
| Bronchodilators + Long acting beta agonists | 1 | 0.4 |
| Bronchodilators and beta-2 agonist+corticosteroid | 1 | 0.4 |
| Long acting beta agonists + Anti cholinergic | 1 | 0.4 |
| adrenergic inhalants | 1 | 0.4 |
| antihistamines | 1 | 0.4 |
| fluoroquinolone antibiotic | 1 | 0.4 |
| glucocorticosteroid | 1 | 0.4 |
| long-acting muscarinic antagonis + long-acting β2-adrenergic agonist | 1 | 0.4 |
| long-acting β2-agonist + corticosteroid | 1 | 0.4 |

### Corticosteroids, Oxygen therapy ,Bronchodilators data preparation

### A) Is there any association between medication (Corticosteroids) and smoking?

|  | **Smoking status** | | |  |
| --- | --- | --- | --- | --- |
|  | **No**, N = 1181 | **Yes**, N = 731 | **Yes and on going**, N = 591 | **p-value**2 |
| Corticosteroids (Yes) | 33 (28%) | 30 (41%) | 18 (31%) | 0.2 |
| 1n (%) | | | | |
| 2Pearson's Chi-squared test | | | | |

The prevalence of *Corticosteroids* was the most in group of participants/ patients who previously smoke (41%), followed by the participants who still smoking (31%) and who did not smoke (28%). But the proportions of prevalence of *Corticosteroids* are not significantly different among the groups, p-value=0.159.

### B) Is there any association between medication (Oxygen therapy) and smoking?

|  | **Smoking status** | | |  |
| --- | --- | --- | --- | --- |
|  | **No**, N = 1181 | **Yes**, N = 731 | **Yes and on going**, N = 591 | **p-value**2 |
| Oxygen therapy (Yes) | 27 (23%) | 14 (19%) | 14 (24%) | 0.8 |
| 1n (%) | | | | |
| 2Pearson's Chi-squared test | | | | |

### C) Is there any association between medication (Bronchodilators) and smoking?

|  | **Smoking status** | | |  |
| --- | --- | --- | --- | --- |
|  | **No**, N = 1181 | **Yes**, N = 731 | **Yes and on going**, N = 591 | **p-value**2 |
| Bronchodilators (Yes) | 19 (16%) | 16 (22%) | 12 (20%) | 0.6 |
| 1n (%) | | | | |
| 2Pearson's Chi-squared test | | | | |

# COPD Patient Management Survey (n=30)

### Specialization

Specialization of physicians.

| Specialization | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| MBBS | 8 | 26.67 |
| Pulmonologist | 4 | 13.33 |
| Chest Specialist | 3 | 10.00 |
| Respiratory Specialist | 3 | 10.00 |
| NA | 3 | 10.00 |
| FCPS | 2 | 6.67 |
| General practitioner | 2 | 6.67 |
| MD | 2 | 6.67 |
| DTCD | 1 | 3.33 |
| MD | 1 | 3.33 |
| MRCP | 1 | 3.33 |
| Pulmonologist | 1 | 3.33 |
| Thoracic Surgeon | 1 | 3.33 |
| Doctor | 1 | 3.33 |
| FRCS | 1 | 3.33 |
| General Practitioner | 1 | 3.33 |
| MACP(USA) | 1 | 3.33 |
| MS | 1 | 3.33 |
| Medicine | 1 | 3.33 |
| Medicine specialist | 1 | 3.33 |
| None | 1 | 3.33 |
| Pulmonary medicine | 1 | 3.33 |

### The most common age group of COPD patient, Age group comes for recurrent treatment

| **Characteristic** | **N = 30**1 |
| --- | --- |
| What is the most common age group of COPD patient you treat? |  |
| 30-40 | 2 (6.7%) |
| 40-50 | 8 (27%) |
| 50-60 | 14 (47%) |
| 60-70 | 4 (13%) |
| 70+ | 2 (6.7%) |
| Which age group comes for recurrent treatment? |  |
| 30-40 | 1 (3.3%) |
| 40-50 | 7 (23%) |
| 50-60 | 13 (43%) |
| 60-70 | 7 (23%) |
| 70+ | 2 (6.7%) |
| 1n (%) | |

### What are the most common symptoms presented by COPD patients?

| Most common symptoms presented by COPD patients | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| Shortness of Breath | 21 | 70.00 |
| Chronic cough | 19 | 63.33 |
| Chest tightness | 10 | 33.33 |
| Excess mucus production | 7 | 23.33 |
| Wheezing | 6 | 20.00 |
| others | 5 | 16.67 |

### Write symptom if the previous answer is “others”

| Symptom if the previous answer is others | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| NA | 22 | 73.33 |
| Fatigue | 2 | 6.67 |
| difficulty breathing | 1 | 3.33 |
| emphysema | 1 | 3.33 |
| exertional dyspnea | 1 | 3.33 |
| frequent respiratory infections | 1 | 3.33 |
| respiratory infections | 1 | 3.33 |
| Asthma exacerbation | 1 | 3.33 |
| Chronic bronchitis | 1 | 3.33 |
| Chronic mucus production | 1 | 3.33 |
| Difficulty in movement | 1 | 3.33 |
| Dyspnea | 1 | 3.33 |
| Persistent cough | 1 | 3.33 |
| Productive cough | 1 | 3.33 |

### Which diagnostic tests do you commonly use for diagnosis and monitoring COPD?

| Diagnostic tests do you commonly use for diagnosis and monitoring COPD | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| Spirometry | 18 | 60.00 |
| Pulmonary function test | 13 | 43.33 |
| Peak airflow | 7 | 23.33 |
| Others | 6 | 20.00 |
| Arterial blood gas analysis | 2 | 6.67 |
| Bronchodilator | 1 | 3.33 |

### write diagnostic test if the previous answer is “others”

| Diagnostic test if the previous answer is others | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| NA | 14 | 46.67 |
| Chest X-ray | 9 | 30.00 |
| CT scan | 2 | 6.67 |
| Chest CT | 2 | 6.67 |
| Bronchoscopy | 1 | 3.33 |
| Chest CT | 1 | 3.33 |
| Lung volume measurement | 1 | 3.33 |
| Periodic lung function tests | 1 | 3.33 |
| Sputum culture | 1 | 3.33 |
| blood oxygen levels | 1 | 3.33 |
| blood test | 1 | 3.33 |
| ABG test | 1 | 3.33 |
| Bronchoscopy | 1 | 3.33 |
| CT scan | 1 | 3.33 |
| Diffusion capacity tests | 1 | 3.33 |
| High-resolution CT scan | 1 | 3.33 |

### Which medication do you typically prescribe for COPD patients?

| Medication do you typically prescribe for COPD patients? | Frequency | Percentage (out of 30) |
| --- | --- | --- |
| Combination inhalers (Bronchodilators+ steroids) | 17 | 56.67 |
| Bronchodialators | 12 | 40.00 |
| Inhaled corticosteroids | 11 | 36.67 |
| Antibiotics | 8 | 26.67 |
| Phosphodiesterase-4 inhibitors (PDE-4 inhibitors) | 5 | 16.67 |
| Methylxanthines | 4 | 13.33 |
| Anticholinergics | 2 | 6.67 |
| Mucolytics | 2 | 6.67 |
| Other | 1 | 3.33 |
| Respiratory Stimulants | 1 | 3.33 |

### If previous answer is other, Kindly specify-

Two answers-Long acting and Long-acting beta-agonists.

### What is the average cost of a month’s worth of COPD medication for a patient (estimate in local currency)?

| **Characteristic** | **N = 30**1 |
| --- | --- |
| What is the average cost of a month's worth of COPD medication for a patient (estimate in local currency)? |  |
| 10-12 thousand tk | 1 (3.3%) |
| 10,000tk | 1 (3.3%) |
| 10000 tk | 1 (3.3%) |
| 1500-5000 tk | 1 (3.3%) |
| 15000-20000 tk | 1 (3.3%) |
| 15000 tk | 1 (3.3%) |
| 2000-6000 tk | 1 (3.3%) |
| 2000 tk | 5 (17%) |
| 3-5K tk | 1 (3.3%) |
| 3000-4000 tk | 1 (3.3%) |
| 3000-4500 tk | 1 (3.3%) |
| 4 Thousands | 1 (3.3%) |
| 5000 tk | 1 (3.3%) |
| 5000+ tk | 1 (3.3%) |
| 8-10,000 tk | 1 (3.3%) |
| About 10000 tk | 1 (3.3%) |
| About 5-6k tk | 1 (3.3%) |
| Around 1000-1200 tk | 1 (3.3%) |
| Consultation and treatment costs vary | 1 (3.3%) |
| Consultation fees vary; medication costs depend on prescription | 1 (3.3%) |
| Depends on treatment plan | 1 (3.3%) |
| Sorry | 1 (3.3%) |
| variable | 3 (10%) |
| Varies based on procedures and medications | 1 (3.3%) |
| 1n (%) | |

### Do you observe any differences in medication response between smokers and non-smokers? If yes please describe-

| **Characteristic** | **N = 30**1 |
| --- | --- |
| Do you observe any differences in medication response between smokers and non-smokers? | 29 (97%) |
| If Yes, Please describe- |  |
| Medications works better in non-smokers and early recovery than smokers | 1 (10%) |
| Non-smokers has early response after drug administration. | 1 (10%) |
| Non smokers response rapidly after medication | 1 (10%) |
| Nonsmokers improves more | 1 (10%) |
| Significant improvement in non smokers | 1 (10%) |
| Smokers has frequent sputum production than non smokers | 1 (10%) |
| Smokers response slowly and recurrence rate is more | 1 (10%) |
| Smokers takes long time for recovery | 1 (10%) |
| Symptoms are prominent in smokers | 1 (10%) |
| Treatment required less for non smokers | 1 (10%) |
| Unknown | 20 |
| 1n (%) | |

### How often do you recommend follow up tests for COPD patient (e.g. spirometry)?+

### How frequently do COPD patients require hospitalization due to exacerbations? +

### What lifestyle changes do you most commonly recommend to COPD patients? +

### Please specify if previous answer is “Others” +

### Are there any new treatments or medication for COPD that you find promising?

| **Characteristic** | **N = 30**1 |
| --- | --- |
| How often do you recommend follow up tests for COPD patient (e.g. spirometry)? |  |
| Annually | 10 (33%) |
| As needed depending on symptom | 14 (47%) |
| Every 3 months | 3 (10%) |
| Every 6 months | 3 (10%) |
| How frequently do COPD patients require hospitalization due to exacerbations? |  |
| Frequently (3+ times in a year) | 1 (3.3%) |
| Occasionally (1-2 times a year) | 12 (40%) |
| Rarely | 17 (57%) |
| What lifestyle changes do you most commonly recommend to COPD patients? |  |
| Diet and Exercise | 2 (6.7%) |
| Plumonary rehabilitation | 2 (6.7%) |
| Smoking cessation | 26 (87%) |
| Please specify if previous answer is "Others" |  |
| Avoid allergen, monitor air quality | 1 (8.3%) |
| Avoidance of pollutants | 1 (8.3%) |
| Avoiding allergens, lifestyle modifications, vaccinations | 1 (8.3%) |
| Diet and regularity in medication | 1 (8.3%) |
| Diet, manage stress level | 1 (8.3%) |
| Exercise for lung | 1 (8.3%) |
| Exercise, avoid pollution, stay hydrated | 1 (8.3%) |
| Maintain optimal body weight, avoid pollution | 1 (8.3%) |
| Nutritional support | 1 (8.3%) |
| Oxygen therapy | 1 (8.3%) |
| pulmonary rehabilitation | 1 (8.3%) |
| Vaccinations (e.g., influenza, pneumococcal) | 1 (8.3%) |
| Unknown | 18 |
| Are there any new treatments or medication for COPD that you find promising? |  |
| Alpha 1 antitrypsin replacement therapy | 1 (7.1%) |
| Benralizumab | 1 (7.1%) |
| Biologics for severe asthma | 1 (7.1%) |
| Community-based support groups | 1 (7.1%) |
| Dual bronchodilator inhalers | 1 (7.1%) |
| Implementation of remote pulmonary rehabilitation programs | 1 (7.1%) |
| Inhaled combination therapies (ICS+LABA) | 1 (7.1%) |
| Inhaled corticosteroid and long acting beta agoinst | 1 (7.1%) |
| N/A | 1 (7.1%) |
| Oxygen inhalation | 1 (7.1%) |
| p38 MAPK inhibitor | 1 (7.1%) |
| Patient education program | 1 (7.1%) |
| Patient education programs | 1 (7.1%) |
| Telemedicine consultations | 1 (7.1%) |
| Unknown | 16 |
| 1n (%) | |