

Methodology of Seasonal Waves of Respiratory Disorders survey conducted at respiratory outpatient clinics across India

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ABSTRACT

Background: Respiratory disorders are important contributors to disease burden across the world. The aim is to assess the proportionate burden of types of respiratory diseases and their seasonal patterns in India we are performing a field study. The present report describes methodological aspects of a respiratory disease point prevalence survey from India. **Methods:** A total of 4108 chest physicians were invited. Acceptance was received from 420 sites. Chest physicians were classified according to location of practice one as medical college, district government hospital, private hospital, and private clinics. Qualifications of practicing chest physicians were postgraduate in chest medicine, including Doctorate of Medicine (68.4%), diploma in chest medicine (22.1%), and Postgraduate in Medicine (9.5%). The study questionnaire was designed to record demographic data, comorbidities, risk factors, and respiratory conditions based on ICD-10. **Results:** A total of 366 sites provided baseline data, and the response rate of recruitment of the study sites was 8.9% in the baseline phase. However, government and private medical colleges, as well as government and private hospitals across India, were part of recruitment of respiratory patients for this survey. **Conclusions:** It is feasible to conduct a large multisite study to assess respiratory disease burden. Challenges include low response rate and logistic issues.

KEY WORDS: Epidemiology, healthcare, respiratory tract diseases

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INTRODUCTION

Respiratory disorders are important contributors to morbidity and mortality across the world. The global alliance against chronic respiratory disease of the WHO and forums of international respiratory societies emphasize that respiratory infections, including tuberculosis (TB), asthma, chronic obstructive pulmonary disease (COPD), occupational lung diseases, sleep apnea, and lung fibrosis constitute serious public health issues, especially in deprived locations of the world and require enhanced surveillance.^[1-4] Comprehensive knowledge of patterns of these diseases, associated comorbidities, and risk factors can help in planning effective management strategies to reduce disease burden.

According to the latest global burden of disease (GBD) report of India, chronic respiratory diseases are the second leading cause of death and disability-adjusted life years in India.^[5] However, GBD results are based on a small number of studies and have other limitations as to the interpretation of results.^[6]

In a retrospective analysis of data from the Asia-Pacific Burden of Respiratory Diseases study, proportionate burden of allergic rhinitis, asthma, COPD, and rhinosinusitis varied greatly depending on the type of health-care practice.^[7] Although the study included general and respiratory disease practitioners from India, it was limited to only four respiratory diseases and to select geographic regions of Asia.

About 50% of patients visiting primary care general practitioners, general physicians, and pediatricians in India do so for respiratory symptoms, as reported in the POSEIDON study.^[8]

The main limitation of this study was the reporting of overlapping respiratory symptoms. This emphasizes the need for good quality field studies to estimate the true burden of respiratory disease in India.

In the present study, we aimed to examine the reasons for visit to a chest physician to assess the proportional point prevalence of respiratory diseases, associated comorbid conditions, and risk factors. We also aimed to assess the proportionate burden of different respiratory diseases in the different health-care settings. Herein, we report methodology from the Seasonal Waves of Respiratory Disorders (SWORD) survey conducted across India.

METHODS

Recruitment of sites

SWORD survey phase-1 was a cross-sectional, multicenter study of point prevalence of the respiratory diseases in India using the standard ICD-10 classification system for the diagnosis. The Indian Chest Society (ICS) initiated

the project. ICS is an organization of chest physicians in India having membership of over 2500 members. Data of chest physicians from other sources such as members of the National College of Chest Physicians (NCCP) of India, the list of participants of the National Pulmonary Conference (2015) were also obtained. Finally, a list of 4108 chest physicians representing all the states were compiled [Figure 1]. An invitation letter was sent to all of them requesting their participation in the survey. Two reminder letters on E-mail and two messages on cell phones were also sent. Initially, 420 chest physicians sent their consent for participation. All the agreeing participants were connected through a social media group to share information regarding different aspects of the survey. The individual site investigator was responsible for recruitment of the study patients from his or her respiratory clinic or hospital setting.

The first phase of the survey was conducted on fixed dates in 2nd week of August 2017. It excluded holidays, postholidays, social or religious festivals or political events to avoid postholiday surges in outpatient numbers.

Ethics committee approval and verbal informed consent were obtained at individual center by the respective investigators. The study was registered at the clinical trial registry of India (CTRI/2018/03/012469). E-mail and mobile alerts on social networking software were sent to the participating centers from national coordinating center before the beginning of the survey. Requisite pro forma and logistic support for the survey were then provided to the participating centers. The geographical map of distribution of participating centers corresponding to the site of practice of chest physicians of the country is shown in Figure 2.

Study pro forma

SWORD pro forma used for this study consisted of a questionnaire, designed rigorously at the National coordinating center by a coordinating team [Supplementary Figure 1]. The initial part of the questionnaire contained information about the site and details about the investigator. The main body of questionnaire contained data capture sheet which was divided into two parts-A and B. Part A had demographic data on age, gender, and socioeconomic status (SES) along with an inquiry into the presence of risk factors. Part B had questions on medical history for comorbid conditions, list of symptoms, and respiratory diagnoses based on the ICD-10. The key respiratory symptoms included were type of cough, breathlessness, chest tightness, wheezing, pain in the throat, fever, and hemoptysis. The main respiratory diagnoses included physician diagnosed or the current diagnosis of COPD, asthma, upper respiratory tract infections, pneumonia, TB, pleural diseases, bronchiectasis, pulmonary aspergilloma, hypersensitivity pneumonitis, sarcoidosis, pneumoconiosis, pulmonary eosinophilia, other interstitial lung diseases, hyperventilation syndrome, sleep apnea, pulmonary embolism, and lung cancer.

Patient selection

During the actual survey weeks, site investigators had to select all the adult patients having respiratory symptoms, > 18 years of age, coming to their respiratory or general OPD. The patients were given a sequence number 0001 and onward. This number was treated with the top left corner of the prescription slip of the patient. No specific intervention or follow-up was done in this study. The participating patients were made aware of the respiratory diseases identified during the study. After filling up the data capture sheet, investigators wrote total number of OPD patients seen by all consultants on that day at the bottom of the last datasheet. Scanned sheets were sent to Asthma Bhawan (www.asthmabhawan.com) which was the national coordinating center. Workers from an Indian pharmaceutical company-Cipla Limited (www.cipla.com) visited all the selected site investigators, extended the necessary support in conducting the study.

Role of the funding source

ICS provided limited funding for the project. National coordinating teams from the Asthma Bhawan, an autonomous academic research institute and Departments of Medicine and Pulmonary Medicine, SMS Medical College, Jaipur (India) contributed to the study design, development of the questionnaire, and provided online training and support to the selected chest physicians. The team contributed to the analyses, interpretation of data, and writing up of the manuscript. Workers from Cipla Ltd., provided logistic support and were not involved in the development of study design, analysis of data, and interpretation of the results. The corresponding author has full access to all the data and is responsible for the decision to submit the manuscript for publication.

RESULTS

Challenges

The first and foremost challenge was to collect data of all doctors running outpatient clinics for respiratory patients in India. Since there is no formal national list of registration, we tried to collect data from the membership list of leading chest societies such as ICS and NCCP. We also collected data from participants of a national respiratory conference as conferences are attended by doctors involved in active care of patients. Even a bigger challenge was motivation of respiratory physicians for participation in the study. Despite two reminders and two messages only 8.9% of them volunteered to participate in the study. However, it can be inferred that most of the respiratory specialty clinics of India were covered in the survey as the practitioners working in these clinics are members of either ICS or NCCP.

Another challenge was the training of such a large number of participants spread across the country. This was

solved by making a social media group for dissemination of task-specific guidelines. Transportation of data was another challenge which was solved by sending scanned copy of study documents online.

Responses to pro forma

Each page allowed one to fill in data for a maximum of twenty patients. Every column represented details of one patient. Example of– how to fill or mark (√) the specific question was also given in the pro forma. For filling up part A of pro forma, the investigator was allowed to take help of a trained assistant. After examination and writing the prescription to a patient, the investigator filled the details in Part B of pro forma by himself. Based on an extensive review of literature, demographic factors and symptoms, respiratory diagnoses, comorbid illnesses, risk factors, and healthcare settings were covered comprehensively in the pro forma.

Each site investigator was provided task-specific training before survey by providing necessary information on social media group regarding filling up of pro forma and other aspects of the study. Frequently asked questions included for general information of site investigators are given as Supplementary Figure 2. Other specific individual queries received online were solved on media group before the start of survey. The questionnaire was initially pilot tested by 15 randomly selected clinicians from two cities in India. Minor logistical issues identified during initial pilot survey were rectified. The questionnaire was found to be easy to fill and required not more than 5 min to record data of a patient.

The response rate for participation in the survey was 8.9% in Phase-I and 366 sites provided baseline data. Among site investigators in Phase-I one of the survey, 68.4% were postgraduate in chest medicine, 22.1% were diploma in chest medicine, and 9.5% were postgraduate in medicine. In this phase, there were 106 medical colleges,

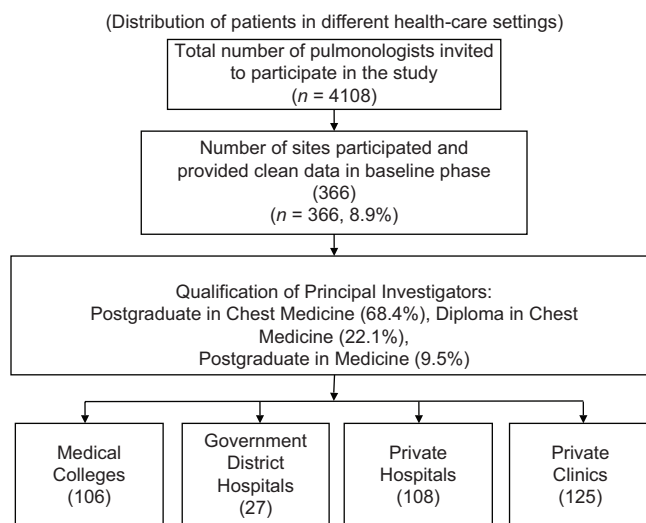


Figure 1: Study flow chart

including private and government medical colleges, 27 district government hospitals, 108 private hospitals, and 125 private clinics.

Seasonal phases of the survey

There were four seasonal phases. The phases are shown in Table 1. The additional phase was conducted for Delhi during the surge of pollution in 2017.

DISCUSSION

There is a paucity of studies on respiratory epidemiology from India and no robust database on pattern of respiratory diseases exists. The GBD study represents morbidity data from National Family Health Surveys, National Sample Survey Organizations, Census of India, and Registrar General of India. These data from verbal autopsy are subject to various kinds of biases including, most importantly, the confounding bias due to incomplete

observations.^[6,9,10] Furthermore, these data are primarily collected for maternal and child health-care issues and do not address specific respiratory diseases.

We tried to cover all important aspects related to respiratory diagnoses and associated conditions and risk factors in the SWORD survey.

Respiratory symptoms and diagnoses

Studies have shown that females tend to present more frequently with wheezing and tend to show more bronchial hyperreactivity as compared to males.^[11,12] According to the GBD study, there is a rising trend of asthma and COPD in India from 1990 to 2016 with an increase of 9% and 29% in crude prevalence rate, respectively for both diseases.^[13] According to the Lancet commission report, presently the private sector is dealing with substantial burden of TB in India.^[14] Therefore, both the sectors should be given equal emphasis while planning strategies against TB. In addition,



Figure 2: Geographic map of study sites distributed across states of India. The photograph shows concentration bar-map of 366 study centers participating in the phase one survey for generating baseline data. The bars represent the location of cities where the survey took place

Table 1: Dates for seasonal surveys

Visits	1 st seasonal survey	2 nd seasonal survey	3 rd seasonal survey	4 th seasonal survey	Extra seasonal survey (Delhi)
Date	August 9, 2017	November 7, 2017	February 5, 2018	May 10, 2018	November 14, 2017

sociodemographic and cultural factors should also be taken into consideration for control of TB.^[15]

Comorbid conditions

Comorbid conditions may have a significant impact on the natural history of respiratory diseases. Allergic diathesis was coexistent in a large proportion of our study population. As per the united airway disease hypothesis, allergic rhinitis is commonly found in asthma.^[16,17] Similarly, urticaria and eczema are also commonly associated with asthma.^[18] Similar observations have been reported in some other studies.^[18,19] Hypertension, diabetes, and OSA are considered to be the major risk factors for cardiovascular disease, and all of them are frequently reported as male dominant conditions.^[20,21]

Risk factors

Smoking is known to be associated with the development of COPD, lung cancer, idiopathic pulmonary fibrosis, asthma as well as TB.^[22] It can also trigger aggravation of allergic diseases and it seems to affect allergic sensitization in a dose-dependent manner.^[23]

The association of biomass fuel with the respiratory disease has been explored more vigorously over the last few decades. This is particularly relevant in developing countries where females routinely cook with biomass fuels.^[24,25] In a questionnaire-based epidemiological survey, the INSEARCH study, both asthma and chronic bronchitis were found to be associated with advancing age, family history of asthma, use of a smoking product, household environmental tobacco smoke exposure, and use of cooking fuels.^[26] In the BOLD study, COPD was strongly associated with male sex, advancing age, smoking, dusty job, occupational exposure to fumes, asthma as well as history of TB.^[27]

Other risk factors in relation to respiratory diseases have scarcely been studied and their role needs to be explored further. In a study from metropolitan Boston area, low SES in women was associated with specific allergen sensitization and indoor inhalant allergens were associated with increased risk of asthma.^[28] Studies have shown that lower SES is also associated with frequent hospitalization and poor asthma control.^[29,30] In fact, the factors leading to socioeconomic health disparity are usually complex and to plan corrective measures for this disparity, individual as well as health system-related factors need be understood.^[31]

Health-care settings

A pragmatic approach to the prioritization of allocation of funds to health-related issues is extremely important, especially in countries where there is scarcity of available resources. As stated above, the private sector has emerged as a leading provider of healthcare in India.

Strength and limitations

The present study adds importantly to the field of respiratory healthcare. It provides knowledge of the actual burden and patterns of respiratory disease in patients visiting practitioners working in different health-care settings in India. Diagnosis of respiratory diseases was based on direct assessment by respiratory practitioners thus eliminating information bias arising out of people responding to unfamiliar scientific expressions about their illness in epidemiological surveys. Importantly, this is the only large scale study of its kind in field of respiratory research in India.

However, because of the inherent nature of reporting in healthcare settings, bias due diagnostic misclassification could not be excluded. Effect of different practice patterns on overall population and certain societal behaviors of population preferentially reaching out to particular healthcare or practitioner could also not be excluded. The response rate of respiratory physicians for volunteer participation in our study was quite low. This is perhaps due to gap between respiratory practice and aptitude towards research in India.

CONCLUSIONS

For comprehensive planning of healthcare-related issues, a different type of data needs to be considered. Despite all challenges, with help of technologies, substantial data can be collected in developing countries like India. The information that would emerge out of the present study may serve as an important supplement to contemporary research in the field of respiratory epidemiology and a guide to further multicentre studies globally.

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Conflicts of interest

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Supplementary Figure 1: Proforma- SWORD Survey

SWORD India : The point prevalence survey (Seasonal Waves of Respiratory Disorders in India)		Name of consultant (Capital letters)																				
A joint venture of Indian Chest Society & Asthma Bhawan		Qualification (tick v underlined text) DTCO MD-Chest MD-Medicine DM DNB/Other:																				
Center Code		Type of practice (tick v underlined text) Med-College District-hospital Private-Clinic /Other:																				
Date / / 201 Average daily temperature of city (on your cell phone) °C		Tick v the appropriate box below if yes to a variable (factor) listed on the left for patient 1 – 20																				
		[First column 'Ex.= example' shows how to fill the boxes, watermarks will help you locate the boxes]																				
		PART-A Preclinical Assessment																				
		Ex	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Demographic Factors	Ex	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Age in years																					
2	Duration of disease – D=Days, W= Wks, M= Mths, Y=Yrs																					
	Income- Low (below poverty line)																					
3	Female																					
4	Male																					
5	Pregnancy																					
6	Vaccination																					
	Flu vaccine - last one year																					
7	Pneumococcal vaccine any time																					
8	Drug History																					
	Anti-tuberculosis drugs – Took complete ATT																					
9	Anti-tuberculosis drugs – Took incomplete ATT																					
10	Taking anti-tuberculosis drugs																					
11	Risk Factors																					
	Biomass fuel exposure – Cooking with wood/dung																					
12	Birds at home																					
13	Pets at home																					
14	Rain wetting (got wet in rain during last 1 week)																					
15	Smoking – Ex-smoker																					
16	Smokefree for at least 1 month																					
17	Smoker – E.g. Bidli/cigarette/chillum/hookah																					
18	Travel – Recent Within 1 month																					
19	Visible mold at home /work place																					
20	Work in mine – (stone/coal/gold)																					
21	Present Visit to Consultant																					
	New visit																					
22	Revisit																					
23	Emergency visit																					
24	PIN (ZIP) Code																					
	Must enter PIN code Write Village-District OR Write Locality-City e.g. Shastri Nagar- Jaipur																					

Center Code:

		PART-B Clinical Assessment																				
Co morbid Conditions		Ex: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
25	Allergic Rhinitis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
26	Anemia		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
27	Arthritis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
28	Diabetes mellitus		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
29	Eczema		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
30	GERD (Gastroesophageal reflux)	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
31	Heart disease (coronary)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
32	Hypertension		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
33	Urticaria		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Presenting Symptoms	Ex: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
34	Breathlessness	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
35	Chest pain		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
36	Chest tightness		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
37	Cough- Productive	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
38	Cough- Dry		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
39	Fever	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
40	Hemoptysis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
41	Pain in throat		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
42	Wheeze		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Present Diagnosis	Ex: 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
43	Asthma		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
44	Asthma- COPD overlap syndrome		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
45	Bronchiectasis- Post-tubercular		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
46	Bronchiectasis- ABPA		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
47	COPD		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
48	Hypersensitivity pneumonitis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
49	Hyperventilation Syndrome		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
50	ILD- IPF		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
51	ILD- Other pattern		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
52	ILD- Collagen tissue disease		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
53	Lung cancer- NSCLC		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
54	Lung cancer- SCLC		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
55	Lung cancer- other		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
56	Pleural disease- Tubercular		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
57	Pleural disease- Other		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
58	Pneumoconiosis- Silicosis	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
59	Pneumoconiosis- Asbestosis		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Center Code:

60	Pneumoconiosis- Coal worker pneumoconiosis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
61	Pneumonia- Bacterial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
62	Pneumonia- Viral	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
63	Pneumonia- Other	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
64	Post-tuberculosis COPD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
65	Pulmonary aspergilloma	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
66	Pulmonary embolism	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
67	Pulmonary eosinophilia	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
68	Sarcoidosis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
69	Sleep apnea	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
70	Tuberculosis- Newly diagnosed	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
71	Tuberculosis- Retreatment	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
72	Tuberculosis- MDR=M, XDR=X	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
73	URTI (Upper respiratory tract infection)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
74	Other diagnosis - not listed above	Kyphoscoliosis																				
	Tests - (done/advised= v)	Ext:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
75	AFB smear	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
76	Arterial blood gas analysis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
77	Bronchoscopy	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
78	Complete blood count with differential count	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
79	CBNAAT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
80	Chest X-ray	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
81	CT of chest	V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
82	DLCO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
83	FeNO (Exhaled breath nitric oxide)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
84	Six-minute walk test	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
85	Sleep study	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
86	Spirometry	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
87	Other tests - not listed above	LFT, RFT																				

Total no. of OPD patients (all consultants today) =

Instructions for filling in the data sheet:

- Fill in your highest qualification.
- Fill the appropriate place of practice
- Fill the appropriate type of practice
- Fill the date and temperature
- We request you to write you name in CAPITAL letters only.
- Please write the name of your city/town and state
- Data has to be filled in a patient-wise format. Every column represents one patient.
- First tick (✓) upon the patient number
- The age of individual patients must be filled in completed years
- Kindly fill in the duration of disease with days/weeks/months/ years
- Under the patient number, tick (✓) the appropriate gender of each of your patients individually by ticking the M or F option
- If female, kindly tick (✓) pregnancy or not
- Kindly tick (✓) whether resident of village/town or city
- Tick (✓) to confirm; which vaccine, patient has received in the last year
- In the drug history section, kindly tick (✓) whether the patient has taken Anti-TB drug or is taking Anti-TB drug.
- Kindly tick (✓) whether patient is taking drugs for HIV, kidney disease or for liver disease
- Out of the 9 risk factors, kindly Tick (✓) the appropriate risk factor
- If more than 1 risk factor, kindly Tick (✓) the same
- Kindly Tick (✓) the appropriate time of visit for the patient to consultant
- Out of the 9 co-morbidities, kindly Tick (✓) the co-morbid condition
- If more than 1 co-morbidities, kindly Tick (✓) the same
- Out of the 9 presenting symptoms, kindly Tick (✓) the appropriate symptom
- If more than presenting symptom, kindly Tick (✓) the same
- Out of the 31 possible presenting diagnostic conditions, kindly **Tick (✓) the appropriate present diagnosis**
- If any other unlisted diagnostic condition is identified, kindly **mention** the same vertically
- Out of the listed 12 tests, kindly **Tick (✓) the done or advised test**
- If any other unlisted diagnostic condition is identified, kindly **mention** the same vertically

Supplementary Figure 2: FAQs- SWORD Survey

FAQs
<p>1. Who can participate in the survey? Answer: Chest specialists who are officially registered with project can participate in the survey.</p>
<p>2. How can I register for the project? Answer: You need to fill agreement form sent to you on your email.</p>
<p>3. Is there a need of Ethical clearance? Answer: Clearance by Ethics committee is mandatory. It may be taken at the level of site investigator or by central ethics committee at National Coordinating Center.</p>
<p>4. Is informed consent required? Answer: It will be a verbal consent detail of which can be obtained from national coordinator's office.</p>
<p>5. Will survey be performed on fix dates? Answer: Yes, fix dates are essential for a point prevalence survey.</p>
<p>6. What if my OPD days do not coincide with survey date? Answer: You can do it on your routine OPD date; week should be same as that of national survey.</p>
<p>7. What if I missed a survey date? Answer: You can do it on any other date of survey week. If you cannot do it in the same week, do it on the next scheduled survey date.</p>
<p>8. Many doctors attend patients in our OPD who will enroll the patients? Answer: A doctor who has registered with survey will enroll patients.</p>
<p>9. How would I identify an enrolled patient when he/she comes back after investigation e.g. CXR? Answer: A patient number should be recorded on the OPD sheet of the patient as well as proforma.</p>
<p>10. How will I benefit from survey? Answer: By completing the survey you will be able to contribute to generate national database on respiratory diseases.</p>
<p>11. Do I need a training to fill the proforma? Answer: It is the proforma which you need to master in order to use it efficiently during the survey. It is strongly recommended that you try filling data of at least 10 patients as a trial before a survey date.</p>
<p>12. I work at multiple places, should I choose private clinic or hospital OPD? Answer: You can do it at either place but use the same place for subsequent surveys.</p>
<p>13. If a patient has multiple diseases which disease should I enter? Answer: The format of proforma is based on ICD 10 diagnoses and symptoms therefore try to include all possible coexistent diagnoses.</p>
<p>14. Do I need to record severity of a disease? Answer: For example, if your patient has come with acute severe asthma you write \sqrt{Ac}. in the space provided in row for asthma.</p>
<p>15. Will I need to send filled proforma to national coordinator? Answer: No, it will be collected from your site. You should send a copy of completed proforma to National Coordinating Center via email.</p>