

# SAVE™ (Screening-diagnosis-management, Assisted, Virtually and Early for Chronic Respiratory Diseases such as Asthma, COPD, Post TB Lung Disease)

- Leadership Team: Dr. Gajanan Devidas Sakhare, Shardul Joshi, Aditi Pais, Mangesh Lunawat
- Briota Technologies
- Company Structure - Hybrid (For profit startup with a not for profit foundation arm PurnaSwasthya Foundation)
- Based at India, Philippines and Denmark

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## Point Of Care - NCD Screening, Diagnosis and Confirmation Company



# BRIOTA





**SAVE™** (Screening-diagnosis-management, **A**ssisted, **V**irtually and **E**arly for Chronic Respiratory Diseases such as Asthma, COPD, Post TB Lung Disease)



75  
Azadi Ka  
Amrit Mahotsav

प्रत्येकश्वासः पारितोषिकमस्ति  
Each Breath is a Gift

**SAVE™** (सुरक्षा)



# PROBLEM: Chronic Respiratory Diseases - COPD, Asthma, Post TB Lung Diseases - Delayed and Missed Diagnosis



Globally 1 in 10 people are afflicted with CRDs, in South East Asia it's 3 in 10 people



**75% or more of patients with CRDs remain undiagnosed and are not managed effectively in primary care : The Lancet Respiratory Medicine**

**Key reasons - absence of Gold standard but difficult to conduct diagnostic test - Pulmonary Function Test (PFT), trained technicians and chest physicians at primary care.**

# SOLUTION - BRIOTA's PLATFORM - SAVE™ -




## Screening, diagnosis, management Assisted Virtually Early

1



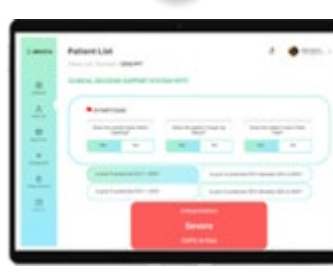
Point of Care PFT  
in a Box™

2



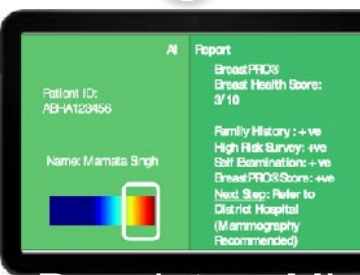
Mobile App For  
Technician

3



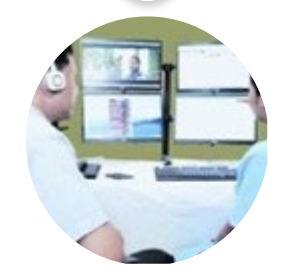
AI enabled  
GOLD CDSS

4



Proprietary ML  
models for  
Lung Health  
Score

5



Remote  
Confirmation and  
Consultations

### SAVE™ workflow established for primary care

1 Population  
Screening



2 Home Test



3 Diagnosis Test



4 Treatment



5 Tele-consultation, Follow-up, Lifestyle - Exercise, Mental Health, Smoking cessation



- SAVE™ is AI first holistic platform has demonstrated that early screening, diagnosis and management of CRDs at primary care can help save significant costs in secondary and tertiary care, reduce DALY, increase QALY and reduce untimely deaths
- SAVE™ addresses CRD problem considering current limitations and priorities of public health system
- SAVE™ uses AI for providing gold standard based diagnosis and generates an unique Lung Health Score (LHS™) for easy tracking, patient communication and generating actionable insights for policy makers
- While spirometers are not new, SAVE™ platform using AI has democratized spirometry by making it feasible in population screening and diagnosis in primary care settings

- In India, SAVE™ uses Indian lung scale in spirometry reporting and can easily adopt to any demographic specific lung scale
- SAVE™ platform initially focused only on CRDs, is now expanded to support CRD patients with comorbidities such as heart diseases, diabetes and mental health issues
- SAVE™ is designed as an AI first Point of Care Testing (POCT) platform for CRDs. However with the modular approach, the platform is capable of catering to other NCDs such as common cancers (breast, oral, lungs) which are not managed at primary care due to similar requirement of conducting complex diagnostic test in presence of an expert.



# SAVE™ - How it Works?

## Level 0 - Risk Assessment + AI Interpretation

NCD Risk Assessment Survey (CBAC) Using Mobile Application - Localized in Multiple Indian Languages

**AI Risk Assessment (Interpretation) to decide on further** Screening For Hypertension, Diabetes, Epilepsy, COPD, Asthma, Cancers, Anemia

Have you smoked more than 100 cigarettes or Bidi in your life time or do you have secondary smoking exposure due to someone smoking in the house?

Do you cough for more than 2 weeks?

Does your family have any history of Cancer?

Do you take alcohol?

If you are mother, have you breastfeed for more than 6 months ?

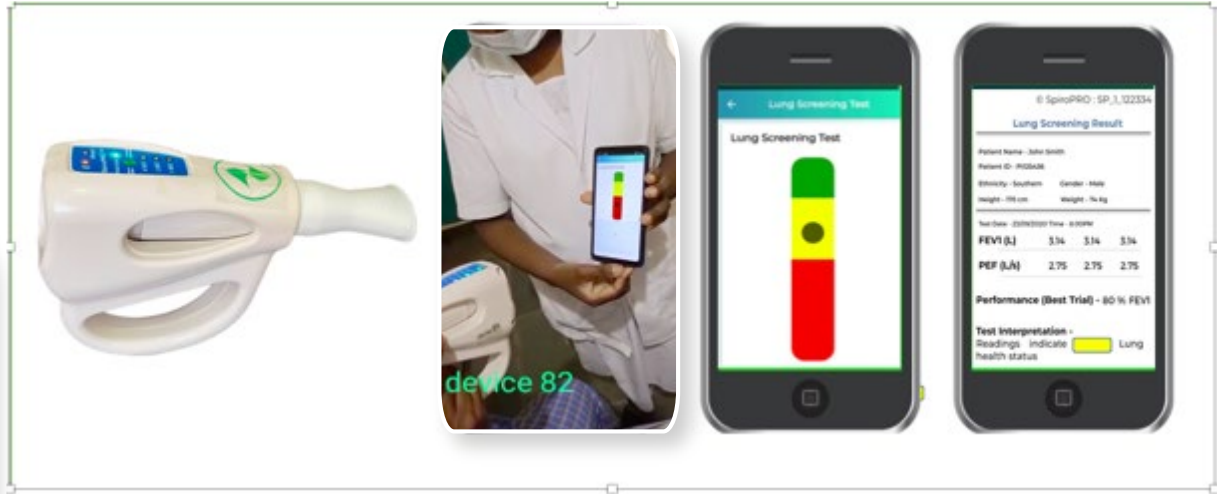
When you run or do any heavy load work, do you hear any wheezing or whisteling sound ?





# SAVE™ - How it Works?

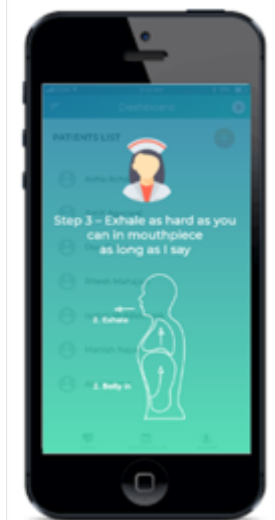
## Level 1 - One Minute Screening - Spirometry Expiratory Test



 <b>National Programme Non Communicable Diseases</b> Asthma, COPD, Post TB Lung Impairment Screening and Diagnosis Program	 ✓ Exercise ✓ Yoga ✓ Balanced Diet
<b>CRD Screening Card</b> Name: _____ Date: _____ ABHA ID: _____ Spiro Test ID: _____ Phone No.: _____ SCREENING : <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Diagnosis Test Appointment: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ PHC: _____	 X Say No to Tobacco X Cigarettes X Bidi X Khaini X Gutkha X Tambakhu Choose Life, Not Tobacco

Easy to conduct, available in local languages - works with a regular Android Phone - At Home or At Sub Center , Community Health Center

## Level 2 - Diagnosis - Spirometry Pre and Post BD



© SpiroPRO: SP\_1\_322332

### Spirometry Report

Name - Ansh Shinde    Gender - Male    Ethnicity - Indian    Date - 06/03/2019  
 Patient ID - P022085    Age - 23    District - Pune, Maharashtra    Test Mode - Diagnostic  
 Height - 171 cm    Smoker - No    Mobile Number - \*\*\*\*\*    Inspiration - GOODPASS  
 Weight - 68 kg    Email ID - ansh.ave@gmail.com    Practitioner Ref - S.R.Chhabra DMB    (www.briota.com)

Flow (L/min)

Volume (L)

Volume (L)

Time (s)

Spirometry Quality  
Pre - B    Post - B

#### Test Results

Parameter	Std		ML		Pre BD		Post BD		Change	
	Pre	LLN	Pre	LLN	Pre	LLN	Post	LLN		
FVC (L)	2.21	1.68	1.30	1.06	3.78	3.66	3.58	3.56	0.8%	
FEV1 (L)	2.88	2.87	2.66	2.69	3.39	3.30	3.28	3.28	<0.05%	
FEV1/FVC	0.83	0.73	0.80	0.75	0.8	0.8	0.82	0.80	0%	
PEF (L/s)	9.45	9.29	9.38	9.04	9.58	9.59	9.27	7.26	-14%	
FEV2.5 (L/s)	-	-	2.50	2.50	2.45	2.45	2.37	2.40	-5.8%	
FEV50 (L/s)	4.82	4.38	4.26	4.58	7.23	7.00	7.04	6.50	1.30	7.8%

**CAT**  
COPD Assessment Test

Global Strategy for Diagnosis, Management and Prevention of COPD

**Modified MRC (mMRC) Questionnaire**

COPD : Yes/ No

#### CLASSIFICATION OF AIRFLOW LIMITATION SEVERITY IN COPD

FEV1/FVC < 0.7

GOLD Class	Severity	FEV <sub>1</sub> % predicted
I	Mild	FEV <sub>1</sub> ≥ 80%
II	Moderate	50% ≤ FEV <sub>1</sub> < 80%
III	Severe	30% ≤ FEV <sub>1</sub> < 50%
IV	Very Severe	FEV <sub>1</sub> < 30%

**GLOBAL INITIATIVE FOR CHRONIC OBSTRUCTIVE LUNG DISEASE**

**THE REFINED ABCD ASSESSMENT TOOL**

Spirometrically Confirmed Diagnosis

Assessment of airflow limitation

Assessment of symptoms/risk of exacerbations

Post-bronchodilator FEV<sub>1</sub>/FVC < 0.7

Grade	FEV <sub>1</sub> (% predicted)
GOLD 1	≥ 80
GOLD 2	50-79
GOLD 3	30-49
GOLD 4	< 30

0 or 1 (not leading to hospital admission)

C	D
A	B

mMRC 0-1 CAT < 10	mMRC 2-3 CAT > 10
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# SAVE™ - How it Works?

## Level 3 - Treatment and Hospital Integration





# SAVE™ - How it Works?

## Level 4 - Lifestyle Modifications Support, Follow Ups

**BRIOTA**  
**SiA™**  
**Asthma Control**

Health Coach Assistance  
Weekly sessions from our Health coaches to check on the health

Sessions from the Specialists  
Nutritionists, Physiotherapists, Yoga & Meditation Experts

**24** Months of Healthy Lungs Program

Healthy Lungs With SiA



### Group Therapy

समूह मनोचिकित्सा

**INTERNATIONAL DAY OF YOGA**



## PATENTS FILED

1. A digital system for the management of respiratory diseases using AI and IOT to generate insights for Personalised Medicines
2. A digital system for the management of COVID-19 infection
3. A device for the detection of obstructive airway disease with Functional Respiratory Imaging
4. Inhaler Technique Correction Mechanism

## Clinical Research and Validations

- ✓ 4 research publications already published, 1 accepted for publication by JOGHR
- ✓ One year clinical trial in Denmark planned to start in Q1-24 sponsored by Chiesi Pharma

## PUBLICATIONS



EUROPEAN RESPIRATORY *journal*

FLAGSHIP SCIENTIFIC JOURNAL OF ERS



# SAVE™ - Certifications and Regulatory



ATAL INCUBATION CENTRE  
CENTRE FOR CELLULAR  
& MOLECULAR BIOLOGY



International  
Electrotechnical  
Commission



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# SAVE™ - CDSCO, ICMR, HTA



FORM MD-5

[Sec sub-rule (4) of rule 20 and sub-rule (6) of rule 20]

Licence to Manufacture for Sale or for Distribution of Class A or Class B medical device

Licence Number MFG/MD/2023-000631

1. M/s Briota Technologies Private Limited, C/O GAJANAN SAKHARE 1101 MARIGOLD G NO. 1395/1 & 1428 FLOOR SUYOG NISARG LOHAGAO Pune, Pune Maharashtra (India) - 412207 Telephone No. 8600244610 FAX 8600244610 has been licenced to manufacture for sale or for distribution the below listed medical device(s) at the premises situated at M/s Briota Technologies Private Limited, S No 144-4, Yashwanth Vihar, 2nd Floor, Flat No. 13 Dhayan, Pune, Maharashtra (India) - 411041 Telephone No. 8600244610 FAX 8600244610

2. Details of medical device(s) [Annexed]

3. This licence is subject to the provisions of the Medical Devices Rules, 2017 and conditions prescribed therein

ANNEXURE


S.No.	Details Of Device(s)
1	<p>Generic Name Diagnostic Spirometer                      Model No. BRIOTA SP - 000001                      Intended Use SpiroPRO® is a diagnostic spirometer device with handheld system for measuring the flowmetric &amp; volumetric respiratory parameters                      Class of medical device Class B                      Material of construction ABS H1121                      Dimension (if any) 152 22 mm (L) X 53 86 mm (W) X 124 70 mm (H) +/- 1 mm for all.                      Weight - 200 Gram +/- 10 gram                      Shelflife NOT Applicable                      Sterile or Non-sterile Non-Sterilized                      Brand Name (if registered under the Trade Marks Act 1999) SpiroPRO</p>

Place Pune

Date 26-Jun-23



State Licensing Authority



**icmr** **RMRCBB**  
INDIAN COUNCIL OF MEDICAL RESEARCH  
 REGIONAL MEDICAL RESEARCH CENTRE, BHUBANESWAR

ଓଡ଼ିଶା ସରକାର - ଡିପାର୍ଟମେଣ୍ଟ ଅଫ୍ ହିଲ୍ଥ ଓ ପରିବାର କଲ୍ୟାଣ  
 Odisha Government - Department of Health & Family Welfare

ICMR-Regional Medical Research Centre, Bhubaneswar  
 Department of Health Research,  
 Ministry of Health & Family Welfare,  
 Government of India

Date: 10/01/24

**To whomever it may concern**


Chronic Respiratory Diseases are amongst the major causes of mortality in India. It is estimated that there are 37.8 million cases of COPD and asthma in the country, contributing to 17.8% and 13% of the global burden, while air pollution (household as well as outdoor) contribute to national COPD burden.

The National Programme for Prevention and Control of Non-Communicable Diseases including Chronic Obstructive Pulmonary Diseases (COPD) is being implemented with an objective to prevent and control major diseases in the country. The programme focuses on health promotion & awareness, diagnosis, management and referral to an appropriate level of health care.


It is known that Point-of-care (POC) devices play a crucial role in the delivery of care. "SpiroPRO" (Spirometer) developed by M/s Briota Technologies is a cost-effective intervention up to Rs. 250. However, a detailed Assessment needs to be carried out to assess the cost-effectiveness of the device.

As per the preliminary report submitted by the manufacturer, the device is found to be a cost-effective intervention up to Rs. 250. However, a detailed Assessment needs to be carried out to assess the cost-effectiveness of the device.


Thanks & regard,

(Dr. Srikantha Kanungo)  
 Scientist-D

(Dr. Debduitta)  
 Scientist-E & HPAI

(Dr. Sanghamitra Pati)  
 Director  
 Regional Medical Research Centre (ICMR)

Government of India  
 Ministry of Health & Family Welfare  
 (Department of Health Research)

2<sup>nd</sup> Floor, IRCS Building,  
 1, Red Cross Road, New Delhi-01.  
 23.04.2024

**Office Memorandum**

**Subject: Health Technology assessment of SpiroPRO for screening of Chronic Respiratory Diseases (COPD & Asthma).**

Sir,  
 With reference above cited subject, the undersigned is directed to inform you the HTA recommendations are as follows:

- Considering the essential nature of the spirometry tool for diagnosing COPD, along with development of technical specifications for a generic device, it is recommended to include spirometers in primary care settings.





## Impact

Population Covered:  
**1 lakh+**

Home Assessment and Mobile App Survey  
For High Risk Population :  
**37,560++**

Spirometry Screening Tests:  
**27,560++**

Spirometry Diagnosis Tests:  
**18,756++**

SAVE Coordinators  
locally hired, trained and  
meaningfully employed:  
**24**

## SUCCESS STORIES FROM PROJECT SAVE™ (सुरक्षा)

Young patient in project SAVE  
got diagnosed with **Asthma**  
and with right treatment is now  
**Winning** district level athletic  
competitions !!!



A TB Patient, got screened for CRD  
and was finally diagnosed for Asthma  
and TB.

**"India TB Mukh Bharat"**



# SAVE™ At Community Care Level in India



# Appreciation from Honorable Minister of State, Health and Family Welfare Government of India



<https://youtu.be/TugMbHF5zbo>





# NPHICON 2024 Winner as Best Poster (Clinical research publication with JOGHR)

## Comprehensive screening programme for early detection and diagnosis of chronic respiratory diseases.

R. Munje<sup>1</sup>, M. Bhakare<sup>2</sup>, G. Sakhare<sup>3</sup>, S. Joshi<sup>3</sup>

<sup>1</sup>Indira Gandhi Government Medical College & Hospital (IGGMC), Nagpur, Maharashtra, <sup>2</sup>Symbiosis Medical College for Women & Symbiosis University Hospital & Research Centre, Symbiosis International Deemed University - Pune, Maharashtra (India), <sup>3</sup>BRIOTA Technologies Private Limited - Pune, Maharashtra (India)

### Background

Chronic respiratory diseases are a growing public health concern in India. According to the ICMR study, Chronic Respiratory Diseases (CRDs) such as Chronic Obstructive Pulmonary Diseases (COPD) and asthma contribute to 11% of all deaths in India. The challenge in achieving early screening and diagnosis of CRDs in primary health are the unavailability of

1. Spirometry system
2. Spirometry technicians
3. Chest physicians.

### Aim

Check feasibility of a large scale CRD diagnosis and management program at primary care using a unique point of care spirometry solution Briota PFT in a Box™.

### Methodology

- Door-to-door assessment using Community Based Assessment Checklist (CBAC) survey
- Spirometry screening using SpiroPRO®
- Diagnosis with Pulmonary Function Test (PFT) test using SpiroPRO®, clinical examination with expert teleconsultation. Project SAVE™ was successfully executed in Dindori, Nashik, Maharashtra in 2023.

### Results

- 15602 people surveyed,
- 4937 (31.6%) identified as high-risk,
- 1231 (80% of PFT test patients) were marked as CRD probable candidates based on SpiroPRO® derived LHS™ (Lung Health Score),
- 1154 (93% of CRD probable candidates) patients were confirmed CRD diagnosed after the clinical examination and expert consultation.



Green (Healthy Lungs)	1012 (35.4%)
Red (Highly Suspicious)	1104 (18.0%)
Yellow (Suspicious)	743 (26%)

● Healthy Lungs (Green score)  
● Highly Suspicious for CRD (Red score)  
● Suspicious for CRD (Yellow score)



PFT in a Box™



SpiroPRO®



Mobile App



AI first  
CDSS



Remote  
Confirmatin

### Conclusion

SAVE™ presents a unique approach for early screening and diagnosis of CRDs at the community and primary care level. The challenge of technology was addressed with Point of Care technology PFT in a Box™ - SpiroPRO®, the challenge of unavailability of technicians was addressed with PFT As A Service model and the challenge of unavailability of pulmonologists was addressed through AI First CDSS, training local Medical Officers and providing tele-confirmation support by chest physicians.

# INTEGRATED WITH NATIONAL PROGRAMS

Ongoing projects in 6 states in India

**NATIONAL PROGRAMME FOR PREVENTION & CONTROL OF NON-COMMUNICABLE DISEASES (NPN-NCD)**

Health In Your Hands

Ministry of Health & Family Welfare Government of India

**NATIONAL TUBERCULOSIS ELIMINATION PROGRAMME**

TB MUKT BHARAT

TB Harega, Desh Jeelega

**AMRIT GRAND CHALLENGE**

AWARDS FOR 75 HEALTHTECH INNOVATIONS!

**जन CARE**

REIMAGINING HEALTHCARE DELIVERY - TOUCHING A BILLION LIVES

75 आज़ादी का अमृत महोत्सव



स्वास्थ्य एवं परिवार कल्याण मंत्रालय  
**MINISTRY OF HEALTH AND FAMILY WELFARE**

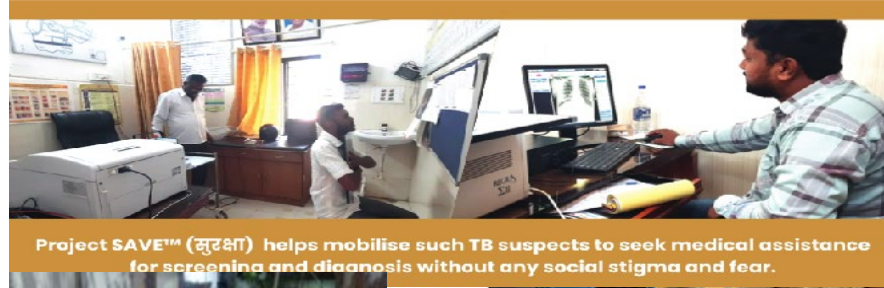


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# SIMPLICITY TO SCALE



- ✓ Defined workflows, SOPs, training material - all available in local languages
- ✓ Battlefield tested - Simple to use at resource constrained settings
- ✓ Technology works with or without data connectivity
- ✓ Tele-confirmation and consultation platform can include 100s of doctors and technicians simultaneously



# DESIGNED FOR SCALE - EXECUTION PARTNERS

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# TARGET DMC ROAD MAP

- Technology available in local languages - Bangla as example
- Bangladesh - Ministry of Health Govt of India has already introduced project SAVE™ and technology in SAARC country health summit
- Problems of India and Bangladesh are almost same for CRD screening, diagnosis and management - same regulatory standards, technology, pharma players in this space - Briota is evaluating various partners with recommendations from Ministry of Health NCD department and WHO HQ India for partnerships in Bangladesh and Indonesia
- Briota is also helped by MIT Solve for partnerships in various Asian and African countries
- Briota already has a team in Manilla Philippines for APAC expansion, office in Denmark for EU expansion and will on need basis setup teams and offices in other DMC locations
- For Spirometers - Briota's spirometer SpiroPRO® class B device can easily get regulatory approvals within 90 days in new DMC countries if there are some regulatory delays - we can use spirometers from partners such as MIR which have CE and FDA approvals and these spirometers are fully integrated with SAVE™ platform



# LEADERSHIP TEAM

GLOBAL LEADERSHIP TEAM WITH 100 + YEARS OF COMBINED EXPERIENCE

30+ R&D and Research, 4+ Sales, § 60+ Field Staff



**Dr. Gajanan Sakhare**

Founder and CEO



**Shardul Joshi**

Cofounder, CTO



**Mangesh Lunawat**

Head of Software Engineering



**Mahipal Shah**

Head of Research and Operations



**Amit Nalband**

Head of Marketing and Sales



**Aditi Pais**

Head of Corporate Partnerships

## BOARD ADVISORS



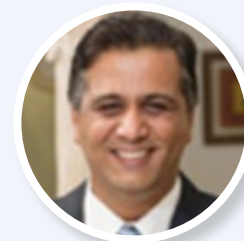
**Morten Albrechtsen**

Health-tech seasoned entrepreneur



**Mayur Sirdesai**

Healthcare Private Equity



**Ashwin Naik**

Entrepreneur, Author, Ashoka Fellow



**Chandru Chawla**

Advisor, Angel Investor, Writer, Mentor

# Scientific Advisory Board



**Elisabeth Bendstrup\***

MD, PhD Head of Lung Care  
Aarhus University Hospital,  
Denmark



**Radha Munje**

MD, Pulmonology, Head of  
Department and Professor at IGMCH  
Government Medical College and  
Hospital Nagpur



**Rohini Patil**

MD, Gynecology, Breast Cancer  
Crusader and Gynecologist



**Meenakshi Bhakare**

MD Respiratory Medicine  
HOD Respiratory Medicine  
Symbiosis Medical College for  
Women, Pune



**Neeraj Desai**

MD, Physician Cardiologist, AI  
Enthusiast



**Dheeraj  
Aggarwal**

MD, Community Health Expert,  
Sr. Scientist, KEM HRC Vadu

# Envisaged Impact on DMC of interest

- Currently, 12.5% of Bangladeshi adults are suffering from COPD in Bangladesh, additional 10% with Asthma and Post TB Lung Disease and over 75% are undiagnosed
- COPD is the one of four main non-communicable diseases that cause 60% of deaths in Indonesia
- Both countries have highest health burden in public health system on account of CRDs
- With platform SAVE™ both DMCs can get insights on practical approaches for screening, diagnosis and management of CRDs and related co-morbidities such as heart disease and diabetes
- Based on implementation in India, incremental cost-effectiveness ratio (ICER) of the SAVE™ platform compared to the standard of care was found to be USD 1,715.41 per QALY gained. This value falls below the WHO threshold for healthcare interventions of one-time the GDP per capita for Bangladesh (USD 2,457) and Indonesia (USD 4,332).
- Hence platform SAVE™ will be able to increase QALY in a cost effective manner, reduce impact of DALY, reduce expenditure in secondary and tertiary care related to hospitalisations and management of advanced CRD cases, ease off choking of secondary and tertiary care and in the end reduce deaths

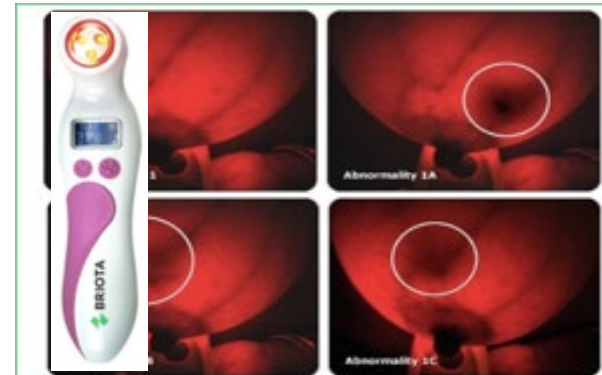
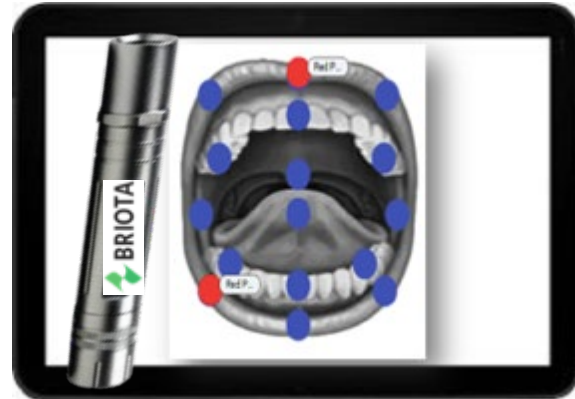


# Field Visit Pictures

# SAVE™ - Beyond CRDs - सुरक्षा (SAVE™) 12 NCD Screening POCT Back Pack



 SAVE™ Programme Non-Communicable Diseases Address: CRDs, Dept. for Lung Improvement Screening and Diagnostic Program	 ✓ Exercise ✓ Yoga ✓ Balanced Diet
<b>CRD Screening Card</b> Name: _____ Date: _____ Aadhar ID: _____ Sanya No. ID: _____ Phone No: _____ KIDNEYWISE Diagnose Your Appointment: <input type="checkbox"/> YES <input type="checkbox"/> NO Date: _____ PAC: _____	 X Say No to Tobacco X Cigarettes X Bidi X Khaini X Gutkha X Tambakhu Choose Life, Not Tobacco





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