Disclaimer

Who We Are: ResApp Health

- The leading digital health company commercialising *regulatory-approved* and *clinically-validated* respiratory disease diagnostic tests, screening tools and management tools that only require a smartphone
- Industry-leading pipeline of respiratory disease products:
  - The world's first regulatory-approved smartphone-based diagnostic test for respiratory disease
  - The only respiratory disease diagnostic test for telehealth that does not require additional hardware or accessories
  - The first clinically-validated smartphone app for at-home screening of sleep apnoea approved as a medical device
  - R&D in COPD and asthma management, consumer health, and hardware devices

Corporate Overview

Capital Structure (ASX:RAP)

Market Cap. as of 21 April 2020	**AU$113M**
Share Price as of 21 April 2020	AU$0.155
Shares on Issue	726M
Performance Shares[1]	93.75M
Incentive Options[2]	41.63M
Cash Balance as of 31 December 2019	**AU$3.9M + AU$5M raised in February 2020**

1. Issued on achieving AU$20M of annual revenue, or on the company being acquired, before 14 July 2020
2. Issued to directors, staff and scientific advisory board with various vesting conditions

Board of Directors

Roger Aston, Ph.D.   Non-Executive Chairman
(Chairman of PharmAust and Immuron, Non-Exec. Director of Oncosil Medical, formerly CEO of Mayne Pharma, Cambridge Antibody, co-founder of pSivida)

Tony Keating, Ph.D.   Managing Director and CEO
(formerly Director, Commercial Engagement at UniQuest, engineering management roles with Exa Corporation)

Dr Michael Stein   Non-Executive Director
(Acting CEO of Valo Therapeutics, formerly co-founder of The Map of Medicine, founding CEO of Doctor Care Anywhere and OxStem)

Chris Ntoumenopoulos   Non-Executive Director
(Managing Director at Twenty 1 Corporate, Non-Exec. Director at Race Oncology, formerly at Citigroup, Indian Ocean Capital and CPS Capital)

Substantial Shareholders*

Fidelity International: 8.74%
Freeman Road: 6.25%
Ian Francis Reynolds: 5.30%

* Based on Substantial Shareholder Notices lodged by the respective holders

A Leading Digital Respiratory Disease Portfolio

		Proof-of-concept	Large-scale studies	Pivotal studies	Regulatory submission	Commer-cialisation	Status / Next Milestone
Acute Respiratory Disease	Paediatric diagnosis						**Approved for clinical use in Europe and Australia**
	Adult diagnosis						**Approved for clinical use in Europe and Australia**
	Consumer health						
Chronic Respiratory Disease	COPD management						**Identification of COPD & asthma exacerbations approved for clinical use in Europe and Australia**
	Asthma management						
	COPD screening						Preparing CE Mark Technical File
Other Indications	Sleep apnoea						**Approved for consumer use in Europe and Australia**
	Warfighter*						

* Warfighter Analytics using Smartphones for Health (WASH) program, in collaboration with US DARPA and Lockheed Martin Corporation

Respiratory Disease Diagnosis is the Most Common Outcome from a Visit to the Doctor[1]

- 700M+ doctor visits p.a. for respiratory disease[2]
- Most common reasons for hospital admission[3]
  - Bronchiolitis (infants)
  - Asthma and pneumonia (children)
  - Pneumonia and COPD (older adults)
- Large proportion of US direct hospital costs[4]
  - US$10.6B p.a. for pneumonia
  - US$5.7B p.a. for COPD
- High prevalence and growth in Asia
  - 100M adults in China with COPD[5]

Upper respiratory tract

pharyngitis, nasopharyngitis, sinusitis, laryngitis and tracheitis (e.g. common cold)

Lower respiratory tract

asthma, pneumonia, bronchiolitis, bronchitis, COPD and other viral lower respiratory tract infections
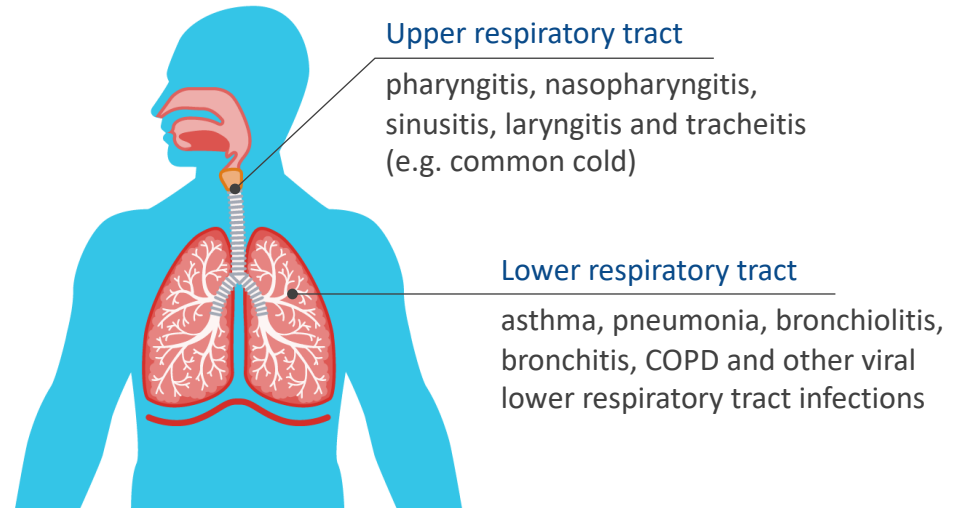
Diagnosed today using stethoscope, imaging (x-ray, CT), spirometry, blood and/or sputum tests

→ Time consuming, expensive, subjective and not very accurate

1. Ambulatory care visits (office and emergency department), National Ambulatory Medical Care Survey 2015
2. ResApp estimate based on OECD doctor consultations per capita data (http://stats.oecd.org), and assuming 10% of visits (US prevalence based on NAMCS 2015 data) are for respiratory disease.
3. HCUP Statistical Brief #148 (2010)
4. HCUP Statistical Brief #160 (2013)
5. Fang. L, et al., Chronic obstructive pulmonary disease in China: a nationwide prevalence study, *The Lancet Respiratory Medicine* 6(6), 2018

ResAppDx Smartphone App
Rapid point-of-care diagnosis using only a smartphone

- Machine learning technology developed by Associate Professor Abeyratne at The University of Queensland
  - Uses signatures in cough sounds to differentially diagnose respiratory disease
  - Able to automatically improve performance and learn new diseases from new clinical datasets
- Uses the built-in microphone in modern smartphones
  - No additional hardware/accessories required
  - Real-time on-device analysis, no connectivity/cloud needed
- Underpinned by growing patent portfolio and data assets
  - Core patent granted in US, Australia, South Korea and Japan[1], in national phase examination in Europe and China; four additional patent applications
  - Proprietary data set, over 6,000 patients' cough and breathing sounds and matching clinical signs, symptoms and diagnosis

1. US Patent No. 10,098,569, Australian Patent No. 2013239327, Japanese Patent No. 6,435,257, South Korea Patent Application No. 1020147030062 (granted).
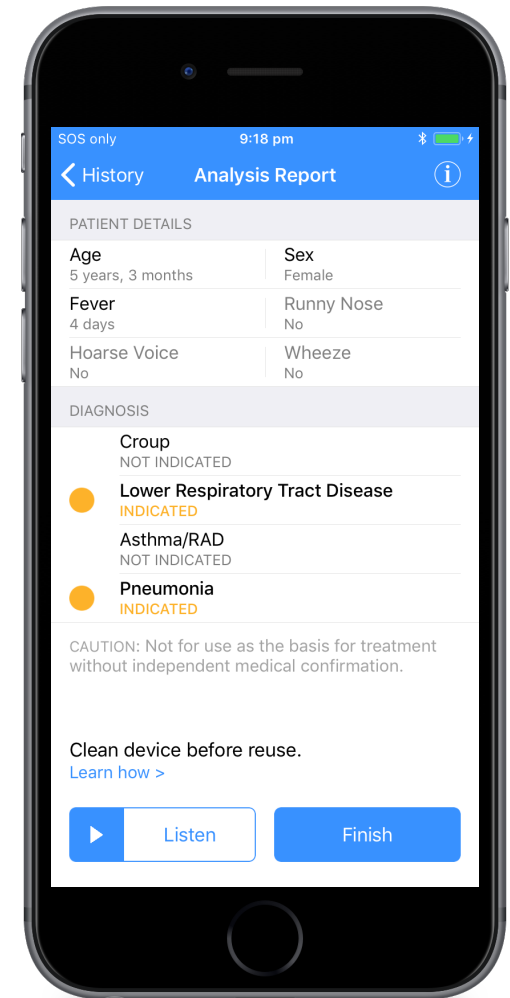
Validated in Multiple Clinical Studies in Australia and the US

Paediatric

Breathe Easy
ANZCTR: ACTRN12618001521213

585 patient, double-blind, prospective study at two Australian hospitals complete

83-97% PPA and 81-91% NPA compared to clinical diagnosis for lower respiratory tract disease, croup, bronchiolitis, pneumonia and asthma/RAD

Results published in *Respiratory Research*[1]

SMARTCOUGH-C-2
ClinicalTrials.gov: NCT03392363

1,470 patient, double-blind, prospective study at MGH, Cleveland Clinic and Texas Children's Hospital complete

73-77% PPA and 70-86% NPA compared to clinical diagnosis for upper respiratory tract disease, LRTD, croup and asthma/RAD

Pneumonia and bronchiolitis <70% PPA and NPA due to clinical practice differences between US and Australia

Presented at ATS 2019, Dallas, TX

Adult

Breathe Easy
ANZCTR: ACTRN12618001521213

979 patient, double-blind prospective study complete

86-88% PPA and 87-89% NPA compared to clinical diagnosis for lower respiratory tract disease and pneumonia

83-89% PPA and 84-91% NPA compared to clinical diagnosis for acute exacerbations of COPD and asthma

86% PPA and 85% NPA for population screening of COPD

Presented at ERS 2019, Spain and APSR 2019, Vietnam

1. Porter, P et al., A prospective multicentre study testing the diagnostic accuracy of an automated cough sound centred analytic system for the identification of common respiratory disorders in children, *Respiratory Research* 20(18), 2019

Well-Advanced Strategy for Commercialisation

ResAppDx is the first regulatory-approved smartphone app for the diagnosis of respiratory disease. Approved for use by clinicians in Europe (CE Mark) and Australia (TGA). Meeting with FDA to be requested to determine next steps in the US.

Key Opinion Leader (KOL) engagement including key relationships with clinicians at top-tier Australian, UK and US hospitals. US-based industry advisory board.

Presentations at key medical meetings and conferences with well-received presentations at ATS 2019 (USA), ERS 2019 (Spain) and APSR 2019 (Vietnam).

Publications and health-economic models including publication of Australian paediatric data in Respiratory Research. Health-economic evaluations planned for the UK (HRA approval received for multi-site adult and paediatric studies) and Germany (LOI with German hospital group).

Telehealth partnerships secured with Coviu and Phenix Health (Australia). Discussions on-going with other telehealth providers. Ramping up BD and sales activities with focus on Australia and Europe.

Telehealth is the Fastest Growing Area of Healthcare

- Rapid growth in telehealth globally, initially in the US

  Teladoc HEALTH · dr. on demand · CVS/pharmacy · VA · amwell · MDLIVE · Walgreens · KAISER PERMANENTE · k health · 98point6 · HealthTap · HeyDoctor

- Accelerating growth in Europe and APAC

  PUSH DOCTOR · babylon · MEDGATE · 中国平安 PING AN · LIVI · doctorlink · 微医 WE DOCTOR · AliHealth 阿里健康 · T HEALTH · COVIU · PHENIX HEALTH
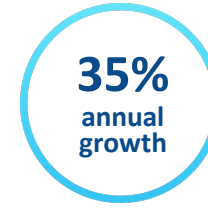
- COVID-19 has accelerated telehealth use
  - Australia: Telehealth is now bulk-billed and reimbursed
  - China: AliHealth recorded 10M visits in two weeks[7]
  - US: Teladoc Health now providing 20,000+ visits per day, a 100% increase since March[8]

75M US consults p.a.
(US telehealth 'evisits' in 2014 estimated by Deloitte)[1]

35% annual growth
(US telehealth market size growth from 2014-2019)[2]

$12B US TAM
(Goldman Sachs estimated US TAM for telehealth)[3]

NHS

All patients will have the right to online consultations by April 2020 and video consultation by April 2021[4]
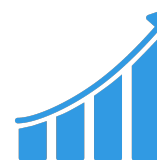
4 billion estimated consults p.a. in China by 2026[5]

平安好医生 PINGAN GOOD DOCTOR

729,000 average daily consultations[6]
67,000,000 Monthly Active Users[6]

ResApp HEALTH

1. Deloitte, eVisits: the 21st century housecall (Aug 2014)
2. IBISWorld, Telehealth Services Industry in the US (2019)
3. Goldman Sachs, The Digital Revolution Comes to US Healthcare (Jun 2015)
4. NHS Digital First Primary Care
5. Frost and Sullivan Research, commissioned by Ping An
6. Ping An Good Doctor 2019 Annual Results
7. Campaign Asia, Green shoots in the midst of the COVID-19 pandemic (Feb 2020)
8. Teladoc Health Previews First-Quarter 2020 Results (Apr 2020)

ResAppDx Enables Telehealth with Remote Diagnosis

- Up to half of all telehealth visits are for respiratory disease[1,2]
- Today, there is **no ability to use a stethoscope** and **no accurate remote diagnosis tools available**

- ResAppDx can be delivered anywhere, anytime while retaining a clinician's input
- No hardware shipped to the patient, uses their own smartphone
- Integrated into existing telehealth providers platforms to provide a seamless experience

- Actively partnering with telehealth providers

Joint Development Agreement signed March 2020
Integration expected to complete by end of June 2020

Initial integration completed March 2020
Binding commercial terms agreed
Per test fee undisclosed (within targeted range of $5-10)

1. Uscher-Pines L and Mehrotra A, Health Affairs 33(2), 2014
2. UnitedHealthcare Presentation (https://www.mobihealthnews.com/content/health-insurance-payer-related-digital-health-news-q2-2016)

Targeting Multiple Market Segments

	Telehealth	Clinical use	Developing world	Direct-to-consumer
Market size	700M doctor visits in OECD for respiratory disease p.a.[1] • 22.5M respiratory-related US telehealth consults p.a.[2]	• 13.4M US ED visits for respiratory disease p.a.[3] (~4.6M for children)	• 1M child deaths due to pneumonia p.a.[4] • 151M cases of pneumonia in developing countries p.a.[4]	• 728M iPhone users[5] • 2B+ Android users[5] • mHealth app market expected to grow to $31B by end of 2020[6]
Value proposition	✓ Only remote clinically-accurate diagnostic tool available ✓ Easily integrated into existing platforms	✓ Reduce costs (<$10 vs >$200 for x-ray) ✓ Reduce time (x-ray adds ~30 mins, cultures can take days)	✓ Low cost, accurate & fast ✓ Usable by non-medical personnel ✓ Integrates into IMCI framework	✓ Convenient ✓ Low cost ✓ Consumer empowerment
Commercial strategy	Partner with telehealth providers	Initial use in emergency departments (ED), extending to regular clinics	Partner with leading international aid agencies to equip field personnel	Direct to consumer sales and marketing
Revenue model	**$5-$10 per test fee** from telehealth providers	**$5-$10 per test fee** from healthcare payors	**annual subscription** from aid agencies	**download and subscription fees** direct from consumers

Improving Chronic Disease Management

- Estimated 339M people globally have asthma[1]
  - $80B+ p.a. US economic burden (2013)[2]
  - Patient adherence to asthma medications is generally very poor
- 251M cases of COPD in 2016[3]
  - Emphysema and chronic bronchitis, primarily caused by smoking
  - 3.17M people died of COPD in 2015, 5% of all deaths globally[3]

1 in 7 children has asthma[4]

1 in 5 adults over 45 has COPD[5]

- Opportunity to measure the severity of asthma and COPD, without the cost of additional hardware or the need to carry an extra device
  - Identified exacerbations in adult COPD and asthma patients at >83% PPA and >84% NPA (prospective study)
  - Demonstrated 94% accuracy in identifying paediatric asthma patients who require additional treatment (proof-of-concept study)

1. The Global Asthma Report 2018 (Global Asthma Network), citing the 2016 Global Burden of Disease Study
2. US CDC, https://www.ajmc.com/newsroom/cdc-study-puts-economic-burden-of-asthma-at-more-than-80-billion-per-year
3. WHO, citing the 2015 Global Burden of Disease Study, http://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd)
4. International Study of Asthma and Allergies in Childhood via 2014 Global Asthma Report, http://www.globalasthmareport.org/2014/priority/ncd.php
5. COPD Foundation, https://www.copdfoundation.org/About-Us/Press-Room/Press-Releases/Article/965/COPD-Foundation-Goes-Orange-for-National-COPD-Awareness-Month-in-November.aspx

Sleep Apnoea is the Most Common Sleep Breathing Disorder[1] and is Significantly Underdiagnosed

- Studies have found that more than 3 in 10 men, and nearly 2 in 10 women have sleep apnoea[2]
- Estimated 80% of adults with sleep apnoea are undiagnosed[3]
- Linked to heart disease, stroke and type 2 diabetes[4]
- Major barriers to diagnosis:

|	
Sleep laboratory polysomnography (PSG)	Requires referral Long wait times $600-$5,000 per test Uncomfortable & unfamiliar environment
Home sleep testing (HST)	Requires referral & training Up to 18% failure rate[5] $150-$500 per test Uncomfortable

1. American Thoracic Society, Breathing in America: Diseases, Progress and Hope, https://www.thoracic.org/patients/patient-resources/breathing-in-america/resources/chapter-23-sleep-disordered-breathing.pdf
2. Peppard et al., Increasing prevalence of sleep-disordered breathing in adults, Am J Epidemiol 177(9), 2013
3. Frost & Sullivan, Hidden Health Crisis Costing America Billions, https://aasm.org/resources/pdf/sleep-apnea-economic-crisis.pdf
4. American Academy of Sleep Medicine, Severe obstructive sleep apnea hurts hearts, https://aasm.org/severe-obstructive-sleep-apnea-hurts-hearts/
5. Clinical Guidelines for the Use of Unattended Portable Monitors in the Diagnosis of Obstructive Sleep Apnea in Adult Patients, American Academy of Sleep Medicine

Identify Sleep Apnoea from Night-Time Audio Recordings

- Using only a smartphone placed on the bedside table
  - Smartphone app uses audio signatures in overnight breathing and snoring sounds to identify sleep apnoea
- High levels of sensitivity and specificity in clinical study when compared to simultaneous AASM Type I (in sleep laboratory) and Type II (at home) PSG sleep testing

Comparison to AASM Type II (at-home) sleep study (n=238)			
	AUC (95% CI)	Sensitivity (95% CI)	Specificity (95% CI)
AHI ≥ 5/h (Mild)	0.91 (0.85-0.96)	85% (80-90%)	73% (52-88%)
AHI ≥ 15/h (Moderate)	0.91 (0.87-0.95)	83% (76-89%)	80% (71-88%)
AHI ≥ 30/h (Severe)	0.93 (0.90-0.96)	83% (72-90%)	90% (84-94%)
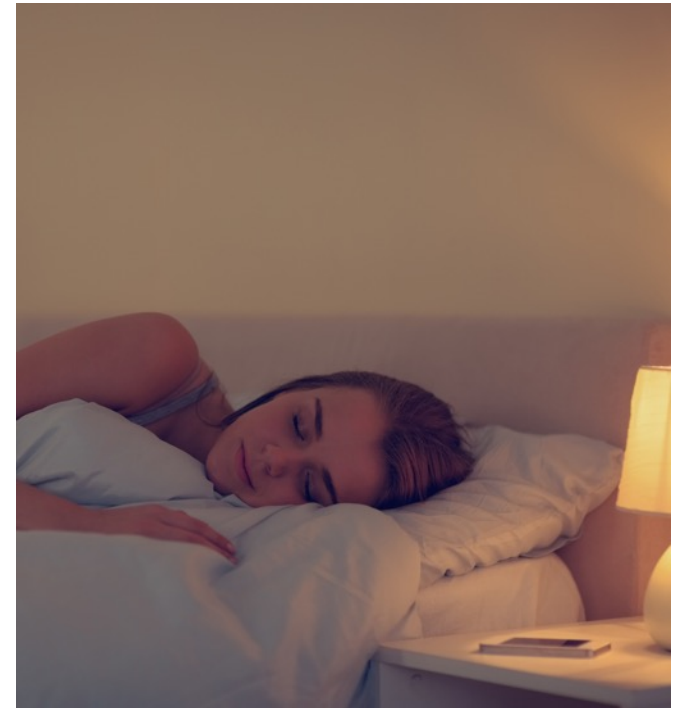
Introducing SleepCheck

At-home sleep apnoea screening using only a smartphone

- An easy to use smartphone application that uses *clinically-validated* algorithms to assess a person's risk of sleep apnoea
  - Requires no wires, no cuffs and no attachments. Simply place the smartphone on the bedside table while you sleep. Wake up to an assessment of your risk of sleep apnoea.
  - No referral needed
  - Approved as a medical device in Europe (CE Mark) and Australia (TGA)
- Launching on the App Store this quarter in Australia and the UK for iOS, with additional countries and Android to follow
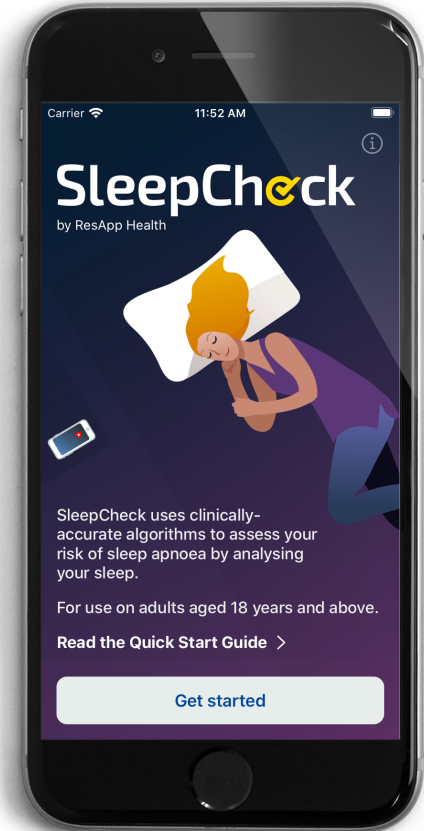
Summary

- *ResAppDx,* the world's first clinically-validated and regulatory-approved acute respiratory disease diagnostic test that only requires a smartphone
  - The only respiratory disease diagnostic test for telehealth that does not require additional hardware or accessories
  - Partnerships with Coviu and Phenix Health, active discussions with other telehealth partners
  - Near and mid-term opportunities in in-person care (emergency departments, urgent care)
- *SleepCheck,* the first clinically-validated at-home sleep apnoea screening app approved as a medical device in Europe and Australia
  - Backed by a large clinical study comparing SleepCheck to an at-home sleep study using PSG
  - Launching on the App Store this quarter in Australia and the UK
- Industry leading product pipeline with near, mid- and long-term opportunities
  - Chronic respiratory disease (asthma, COPD) screening and management
  - Actively working with Lockheed Martin on US DARPA-funded WASH research program
  - Handheld and wearable device development underway with prototypes completed

Detailed Clinical Study Data

Australian Blinded Prospective Paediatric Clinical Study

Breathe Easy Paediatric Study
(ANZCTR: ACTRN12618001521213)

- Double-blind, prospective study of 585 patients, aged 29 days to 12 years, presenting with signs and symptoms of respiratory disease at two Australian hospital sites
- Comparison to clinical diagnosis (including CXR, lab tests) formed by clinical adjudication committee

Porter, P et al., A prospective multicentre study testing the diagnostic accuracy of an automated cough sound centred analytic system for the identification of common respiratory disorders in children, Respiratory Research 20(18), 2019

	Patients[1]		Positive Percent Agreement[2] (95% CI)	Negative Percent Agreement[2] (95% CI)
	Y	N		
Lower respiratory tract disease	419	154	83% (79-86%)	82% (75-88%)
Asthma/reactive airways disease	149	381	97% (92-99%)	91% (88-94%)
Croup	68	500	88% (78-95%)	86% (82-89%)
Pneumonia	60	509	87% (75-94%)	85% (82-88%)
Primary upper respiratory tract disease	89	482	79% (69-87%)	80% (76-83%)
Bronchiolitis (patients aged < 2 years old)	131	26	84% (77-90%)	81% (61-93%)

1. Number of patients clinically diagnosed as having disease (Y) or not having disease (N).
2. As per FDA guidance, positive and negative percent agreement (rather than sensitivity and specificity) are used when a new test is compared to a non-reference standard such as a clinical diagnosis.

US Blinded Prospective Paediatric Clinical Study

SMARTCOUGH-C-2 Study

(ClinicalTrials.gov: NCT03392363)

- Double-blind, prospective study of 1,470 patients, aged 29 days to 12 years, presenting with signs and symptoms of respiratory disease at three US hospital sites (MGH, Cleveland Clinic and TCH)
- Comparison to clinical diagnosis (including CXR, lab tests) formed by clinical adjudication committee
- Pneumonia and bronchiolitis results <70% due to observed clinical diagnosis differences between US and Australia

Moschovis PP et al., A cough analysis smartphone application for diagnosis of acute respiratory illness in children, American Thoracic Society Conference 2019

	Patients[1]		Positive Percent Agreement[2] (95% CI)	Negative Percent Agreement[2] (95% CI)
	Y	N		
Lower respiratory tract disease	412	775	73% (68-77%)	77% (74-80%)
Asthma/reactive airways disease	176	886	71% (64-78%)	86% (83-88%)
Asthma/reactive airways disease (children aged > 2years old)	177	779	75% (68-82%)	84% (82-87%)
Croup	29	1207	74% (53-87%)	74% (71-76%)
Primary upper respiratory tract disease	722	453	76% (73-79%)	70% (66-74%)
Pneumonia (Focal)	52	1027	67% (53-80%)	64% (61-67%)
Pneumonia	100	1150	63% (53-72%)	62% (59-65%)
Bronchiolitis (children aged < 2 years old)	42	89	76% (60-88%)	60% (59-70%)

1. Number of patients clinically diagnosed as having disease (Y) or not having disease (N).
2. As per FDA guidance, positive and negative percent agreement (rather than sensitivity and specificity) are used when a new test is compared to a non-reference standard such as a clinical diagnosis.

Australian Blinded Prospective Adult Clinical Study

Breathe Easy Adult Study

(ANZCTR: ACTRN12618001521213)

- Double-blind, prospective study of 979 subjects
- Comparison to clinical diagnosis (including CXR, CT, spirometry, lab tests) by expert clinicians

Claxton S et al., Late Breaking Abstract - Diagnosis of chronic obstructive pulmonary disease (COPD) exacerbations using a smartphone-based, cough-centred algorithm, European Respiratory Society International Congress 2019

	Subjects[1]		Positive Percent Agreement[2] (95% CI)	Negative Percent Agreement[2] (95% CI)
	Y	N		
Lower respiratory tract disease	358	163	88% (84-91%)	89% (83-93%)
Pneumonia	159	163	86% (80-91%)	87% (80-91%)
Asthma exacerbation	46	73	89% (76-96%)	84% (73-91%)
COPD	117	381	86% (79-92%)	85% (81-89%)
COPD exacerbation	86	78	83% (73-90%)	91% (82-96%)

1. Number of patients clinically diagnosed as having disease (Y) or not having disease (N).
2. As per FDA guidance, positive and negative percent agreement (rather than sensitivity and specificity) are used when a new test is compared to a non-reference standard such as a clinical diagnosis.

Obstructive Sleep Apnoea Study

OSA SNOREAPP Study

- Blinded, prospective study of 582 patients (in sleep laboratory) and 238 patients (at-home)
- Comparison to PSG AASM Type I sleep study (in sleep laboratory) and PSG AASM Type II sleep study (at-home)

	Comparison to AASM Type I (in laboratory) sleep study					Comparison to AASM Type II (at-home) sleep study				
	Patients[1]		AUC	Sensitivity	Specificity	Patients[1]		AUC	Sensitivity	Specificity
	Y	N	(95% CI)	(95% CI)	(95% CI)	Y	N	(95% CI)	(95% CI)	(95% CI)
AHI ≥ 5/h (Mild)	507	47	0.90 (0.87-0.93)	84% (80-87%)	83% (69-92%)	212	26	0.91 (0.85-0.96)	85% (80-90%)	73% (52-88%)
AHI ≥ 15/h (Moderate)	346	205	0.88 (0.85-0.91)	80% (75-84%)	80% (73-85%)	126	92	0.91 (0.87-0.95)	83% (76-89%)	80% (71-88%)
AHI ≥ 30/h (Severe)	191	372	0.90 (0.87-0.93)	82% (76-87%)	82% (77-86%)	75	153	0.93 (0.90-0.96)	83% (72-90%)	90% (84-94%)

1. Number of patients clinically diagnosed as having disease (Y) or not having disease (N).