

#KeeleHealthNet

Welcome to the

# Launch of the Healthcare Business Network



University Hospitals  
of North Midlands  
NHS Trust



#KeeleHealthNet

# Professor Trevor McMillan

Vice-Chancellor  
Keele University



#KeeleHealthNet

# Dr Mark Bacon

Director of Research, Innovation  
and Engagement  
Keele University



# What is Business Bridge?

- Innovation support for a priority high value sector/market
- Focus on both UK/overseas healthcare/medtech markets
- Led by the University and University Hospitals North Midlands building on a long term relationship
- Providing access to wide-ranging expertise
- Fully-funded business support through innovation vouchers and/or collaborative R&D
- Market not sector focus



# Wider context: The Keele Deal

- Programme forms part of the New Keele Deal initiative
- Strategic partnership between local authorities, Keele, Hospital Trust, the LEP and local business
- An economic deal to harness the value of a research intensive University to create higher value jobs locally
- £70m programme of investment over the next 5 years with more than £40m of investment secured



University Hospitals  
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# Innovation Vouchers

NHS Procurement

How do I get my product into the NHS?

Regulatory

Which regulations does my product have to comply with?

Prototyping/  
Testing

Does my design work in the real world?

Market Research

Who are my potential customers?

Up to £5,000 in value. Delivered by professional, specialist consultants

# R&D Collaborations

## Keele

Science and Technology  
School of Medicine  
Primary Care  
School of Nursing  
Physiotherapy  
Life Sciences  
School of Pharmacy

## UHNM

Clinicians  
Clinical Support  
Estates  
IT

Up to 30 days of clinical or academic time. Delivered by Keele or UHNM staff.

health2works



redecol



TEST LTD

HD HAUGHTON DESIGN



dermal technology laboratory



Medical Moulded Products

polyflon



PARTNERS FOR ENDOSCOPY



Heimdall PROTECTIVE TECH

University Hospitals of North Midlands NHS Trust



Keele UNIVERSITY





# Summary

- Critical programme underpinning growth of a locally significant sector to deliver higher value jobs
- Proving to be an effective model of innovation support
- Growing case studies of success (as you will see!)
- Significant engagement to date across a range of sectors
- Plans to extend the programme to 2023
- Sector focus of future science park expansion plans
- Raising profile of the local area in Midlands Engine

# Contacts

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Business Partnerships Manager  
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# Anna Waugh

Managing Director  
Simple Stuff Works



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# SIMPLE STUFF WORKS

Keele University's Business Bridge programme

## SIMPLE STUFF WORKS

- We are a manufacturer of a specialist piece of night time positioning equipment and an accredited training provider
- 2 projects which have been 100% funded through Business Bridge
- 1 project supporting us with regulatory compliance
- 1 project allowing us to develop new training resources

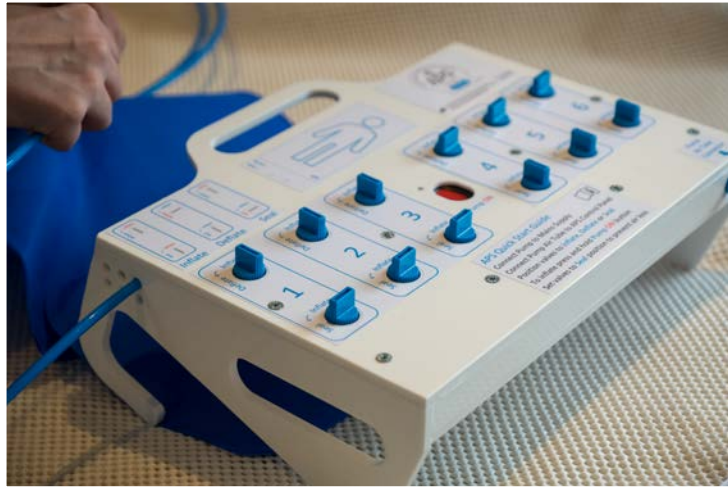


# REGULATORY COMPLIANCE

New product  
technical file  
development

Template  
development for  
further products

Support to enable us  
to comply with  
changes to the  
Medical Device  
Directive



## TRAINING RESOURCES

- Working with the animation team at Keele University to develop a training resource for families and professionals
- Works in line with our new online portal for collecting measurement data about body symmetry
- Will demonstrate to individuals the meaning of their measurements

## SIMPLE STUFF WORKS

The Keele University Business Bridge programme has been fantastic!

Allowed us access to consultants and support which we would never have had before

Allowed us access to academics and resources

Helpful and efficient team

Easy to partake in and well worth the time and investment



# An ABC of Business Bridge

Luke Bracegirdle, Head of Digital & Business Analytics  
School of Pharmacy, Keele University

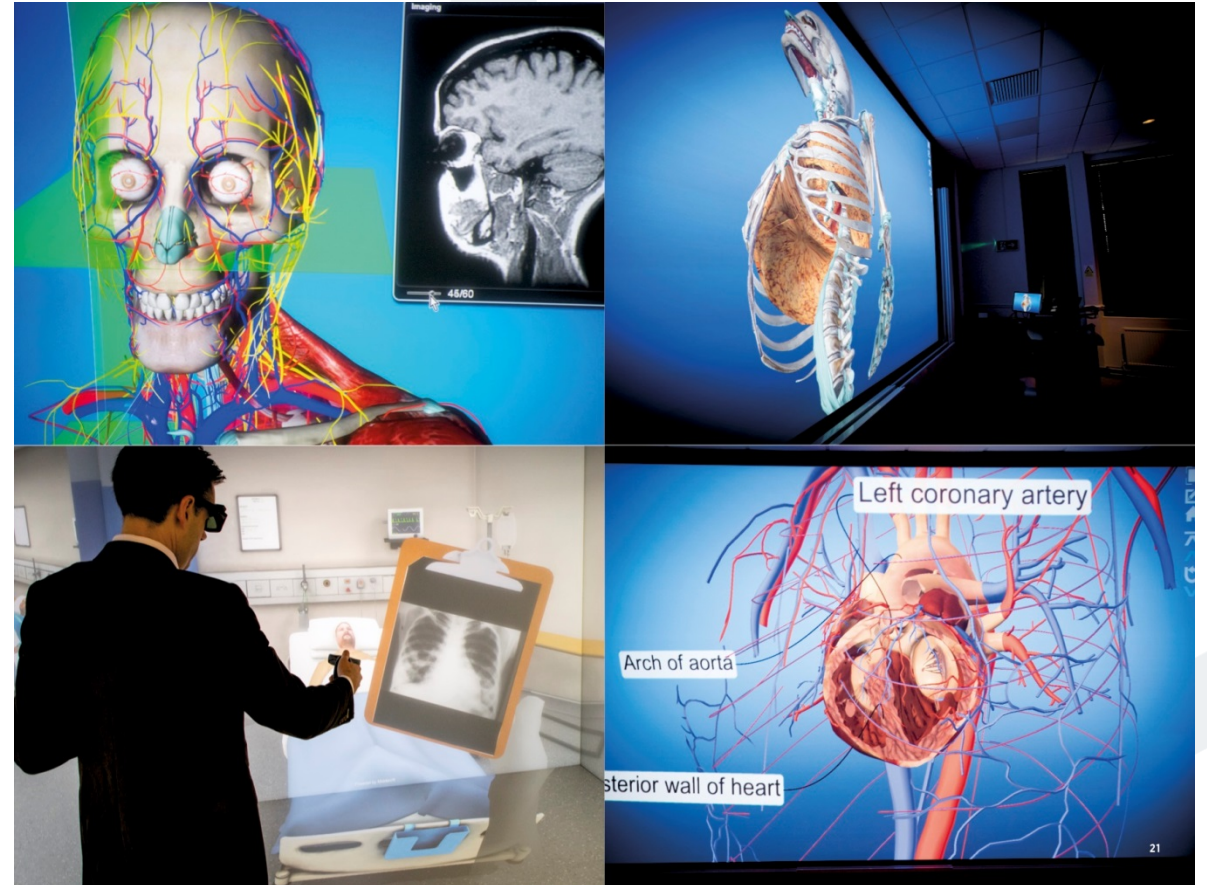
[l.bracegirdle@keele.ac.uk](mailto:l.bracegirdle@keele.ac.uk)

# Academia

Interdisciplinary teams...

- Healthcare professionals
- Software developers/artists
- Learning space designers
- Researchers
- Patients/users

...developing bespoke solutions.





# Keele

UNIVERSITY

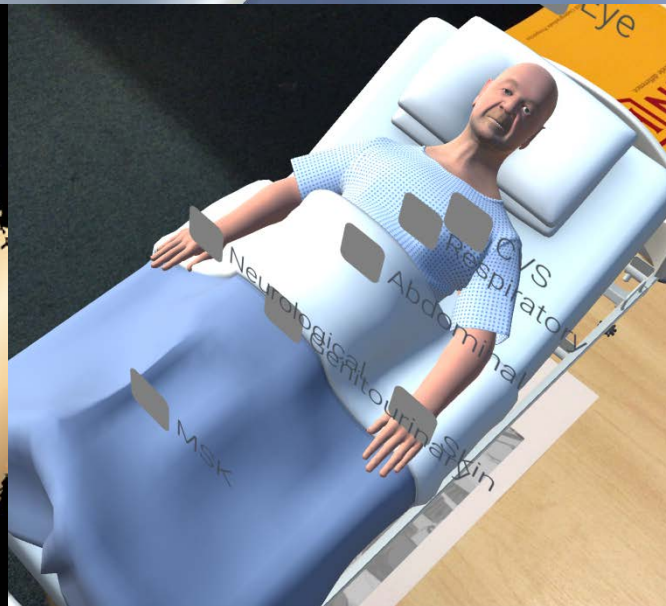


Mic Exam Notes Prescribe Drug Drug Therapy Chart ECG Current Target: Bertie

**SHORTLISTED**

**THE LEADERSHIP & MANAGEMENT AWARDS 2018**

Outstanding Digital Innovation of the Year



Notes Prescribe Drug Drug Therapy Chart ECG Current Target: Bertie

### ECG

Pulse	92.67	BPM
Blood Pressure	120 / 80	mmHg
RR	24.17	BPM
Temp	37.90	C
SpO2	83.92	%

# Business

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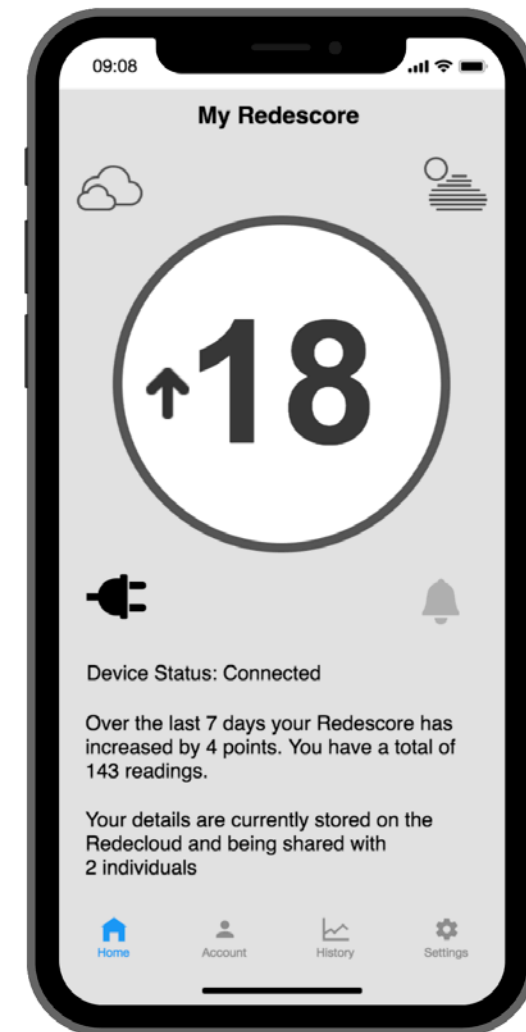
- NDAs allow confidential discussion, two-way sharing of technology/prototypes with Business Bridge participants
- All participants can progress to understand the business need
- Specific, realistic work packages are defined
- A timeline for delivery is agreed

# Collaboration

- Redecol wish to create an app to read data from medical device they are developing

## Work packages:

- Procurement
- Prototyping for the user requirements specification
- Data confidentiality
- NHS accreditation



# Collaboration

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- Simple Stuff Works (SSW) wish to use their website to simulate body position and measurement

## Work packages:

- Design of new avatars (computer generated characters)
- Prototyping
- Development & testing of a solution
- Integration of a bespoke software component into the SSW website

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# Margaret McQueen

QA Manager  
Redecol Ltd





**Business Bridge Innovation  
Voucher  
June 2018**



## Board of Directors



**Graham Hine**  
Chairman of the Board

Graham broad experience of Chairman and CEO roles across a range of medical equipment, nanotechnology and sensor companies, including listed and VC backed entities.



**Tim Coutts**  
CEO

Tim brings over 20 years' experience in the medtech industry from multinational companies, such as Boston Scientific to SMEs and is a former board member of ABHI.



**Andrew Moss**  
Market Development and Access Director

Andy has considerable pharmaceutical and medical device experience, particularly with regard to market development, market access and in building specialist Sales & Marketing teams to deliver these strategies.



**Barbara Lead**  
Non-Exec Director

With a wealth of experience in the asthma space, Barbara is the CEO of Oval Medical, which was recently acquired by SMC, becoming the first successful exit for Syndicate Room



**Zia Mursaleen**  
Finance Director

Zia is a chartered accountant and corporate financier having qualified and worked with Deloitte for 10 years. He is a founder of VA Corporate Finance Ltd providing corporate finance and financial consultancy to SMEs for over 20 years.

## Management Team



**Lee Brooks**  
R&D Manager



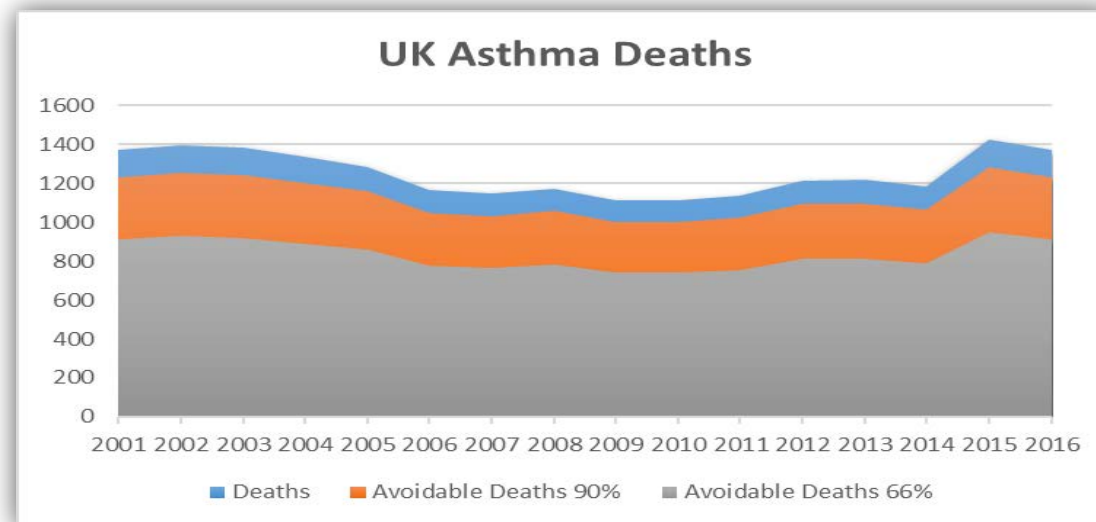
**Margaret McQueen**  
QA Manager



**Mark Wade**  
Supply Chain and QA Support

# Asthma, The Unmet Need.

- In Europe alone there are 30 million asthma sufferers, over an eight year period 4 million will be hospitalised, and 120,000 will die.
- Asthma attacks hospitalise someone every 8 minutes; 185 people are admitted to hospital because of asthma attacks every day in the UK.
  - A&E admission cost: £2,400 (>£162,000,000 per year)
  - ITU cost per day: £8,700
- Only 5% of all patients currently monitor their asthma/lung function, with 50% of asthma sufferers being classified as “uncontrolled”.



# Connected Asthma: How technology can transform

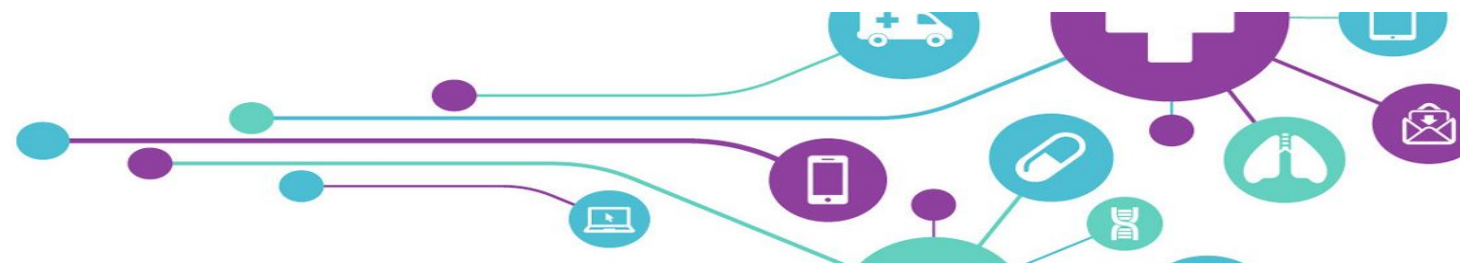
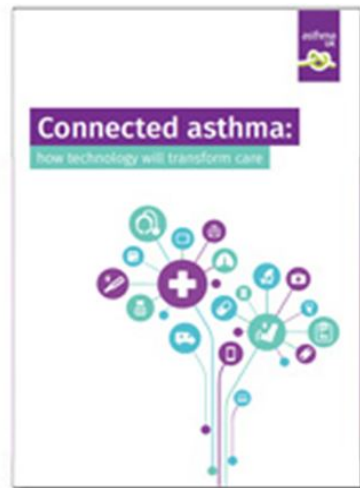
care (Asthma UK)



“**Remote monitoring** could help healthcare professionals to better support people with asthma, with technology potentially able in the future to detect when a person’s asthma is worsening and respond appropriately to prevent an attack.”

## Key recommendations

Technology offers much promise but we are still at the early stages. More needs to be done to help ensure that people with asthma in the UK are able to benefit from a new connected way managing asthma.

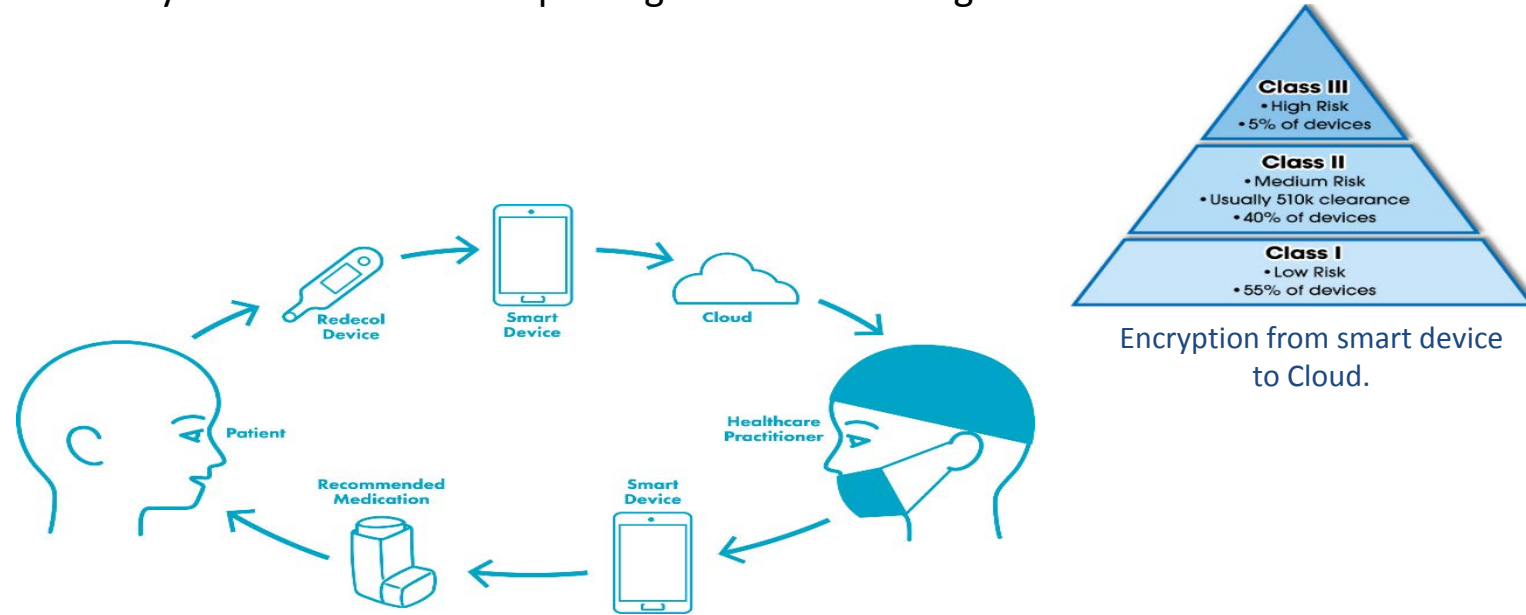


# Our solution: Prototype to Commercialisation

- Breathe EasyFlow is a SMART device, an alternative to peak flow, allows patients to send their results to their doctor or asthma nurse so that they can offer further help and guidance to manage their condition.

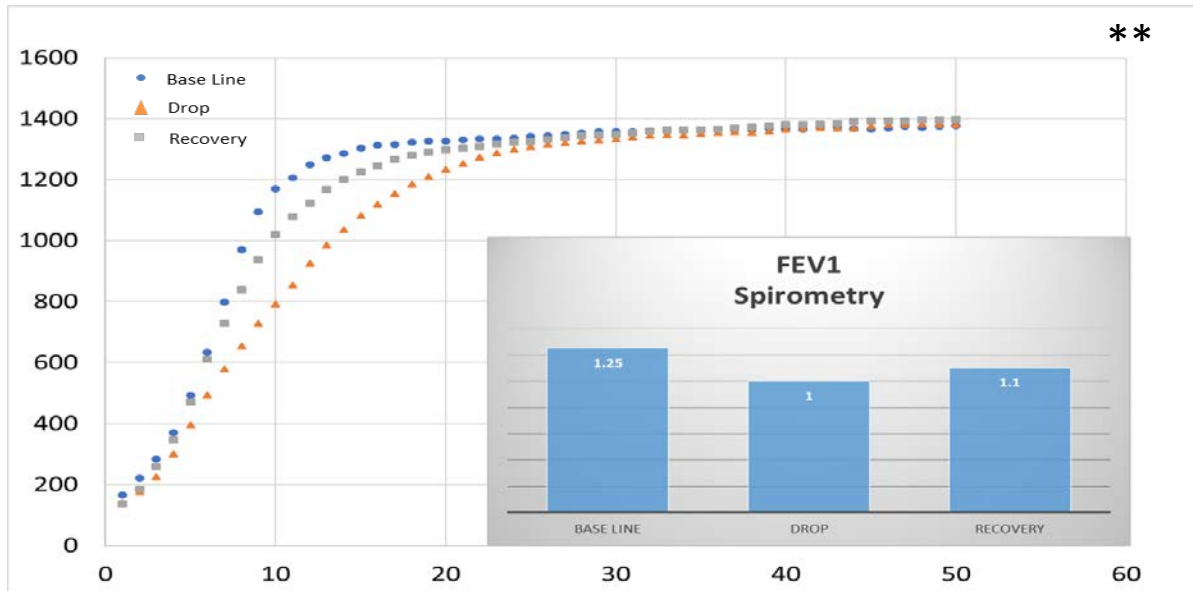


Bluetooth security from monitoring device to Smart Device



# Our Solution: Where Are We Now?

- Breathe EasyFlow is a handheld device that utilises our proprietary sensor technology.
- Breathe Easy Flow uses the shape of the breath profile to detect changes in lung function. Forced exhalation is not required unlike other devices.
- The shape of breath profiles have successfully demonstrated to be indicative of lung function.



The study produced an interesting observation. Borg score, which is a subjective measure of how symptomatic a subject feels, using a number scale of 0 to 10, did not correlate to FEV<sub>1</sub> scores.\*\*

# Clinical Programme:

✓ **Imperial College – Professor Martyn Partridge (published) clinical poster.**

*“The Asthma Alert Device (breathe Easy Flow) is in development for the diagnosis of Asthma and COPD and for the management of these conditions by patients. The results of this first study with the prototype device are extremely encouraging and indicate that Asthma Alert (BEF) has significant potential for the diagnosis of asthma and COPD.”*

✓ **EU & Asia – Proof of Concept studies vs. Spirometry;  
Submitted by our CRO for publication in 2017.**

- *December 2017 issue of the Indian Medical Gazette, “Evaluation of Breathe EasyFlow Humidograph as a Novel Diagnostic Tool for Asthma”*

✓ **Professor Wardlaw, Leicester, UK**

20 patients – “Challenge” study vs. spirometry over 4 hours

- *The primary objective of optimising sensor performance in the device and demonstrating that the device can detect changes in lung function were achieved. This allows the next phase of work, development of a commercial device, to begin.*

Innovate UK

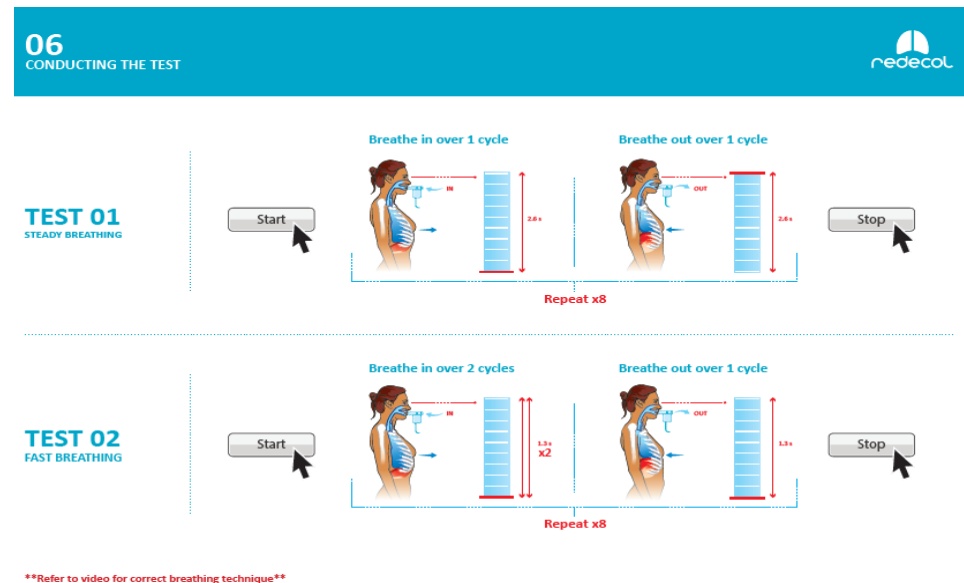
**India Study** multi-centre, 100 patients.

- Comparator study, following each patient for 4 weeks vs. spirometry.
- Multi Centre, steroid naive, symptomatic patients.
  - *Reporting phase with interim report available.*

Innovate UK

# Business Bridge Innovation Voucher One: What We Did

- Guidance on how to use the device was required for the patients and healthcare professionals in India.
- We applied for an innovation voucher from Business Bridge to develop a quick start guide and instruction video.
- This allowed us to use a Creative team from a consultancy firm (Run Creative in Wilmslow) to develop these two items.
- The key requirements were for them to be simple to follow and use the smallest number of words possible to minimise translational issues.
- They have been successfully used in India in our clinical trial.





# Business Bridge Innovation Voucher Two: What We Are Doing

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- Our Commercial Device, which is now under development, will connect our device to a Smart Device such as an iPhone.
- We applied for the second innovation voucher from Business Bridge to help identify an App developer.
- This work package included creating a shortlist of appropriate App developers, create a scoping document to guide the initial quote, interview the companies and select an appropriate company.
- The Innovation Voucher has allowed us to work with Luke Bracegirdle, Head of Digital & Business Analytics at Keele University's Faculty of Medical and Health Sciences.
- Luke has a wealth of knowledge and experience in the field of App development which we do not have inhouse.

# Applying for the Innovation Voucher

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- The Business Bridge team were (and continue to be) extremely supportive.
- Gave useful guidance as to what would and would not be eligible.
- Straightforward forms to complete for the application and the ongoing reports.
- Allowed us to complete the first work package that otherwise would not have been done, or would have been done inhouse and would have not had the same level of quality and professional feel to the finished article.
- The second work package has given us access to a level of experience that we do not have inhouse and it would have been challenging to identify an impartial consultant that could have provided the same level of support
- For further information regarding the Business Bridge programme, please contact Kylie Salmon, Project Manager, on **01782 734467** or email [k.salmon@keele.ac.uk](mailto:k.salmon@keele.ac.uk).

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BUSINESS **G**ATEWAY

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