2011

PneumaCare Limited

Investment Memorandum

An investment opportunity in a revolutionary medical device business for non-invasive respiratory monitoring in clinical practice, critical care and the home

T: +44 1223 96 8180
E: info@pneumacare.com
W: www.pneumacare.com
9/2/2011

PneumaCare Ltd

Investment Memorandum

Figures:

Conditions

This document has been prepared for information purposes in connection with a possible investment in PneumaCare Ltd ("the Company"). The information in this document or on which this document is based has been obtained from sources that the Company believes to be reliable and accurate, but it has not been independently verified. The information and opinions contained in this document are provided as at the date of this document and are subject to change without notice. No representation or warranty, express or implied, is or will be made in relation to, and no responsibility of liability is or will be accepted by the Company or by any of their respective officers servant or agents as to or in relation to, the fairness, accuracy or completeness of this document or any other written or oral information made available to any interested party in relation to such investment. The Company expressly disclaim any and all liability that may be based on such information, errors therein or omissions there from. In particular, no representation or warranty is given as to the attainment or reasonableness of any future projections, management targets, prospects or returns.

This document is confidential and has not been approved for the purposes of the Financial Services and Markets Act 2000 ("FMSA") or otherwise. It is being distributed only to recipients who have indicated that they are persons to whom it may lawfully be issued without the need for it to be issued or approved by an authorised person for the purpose of section 21 of the FSMA, being persons having professional experience in matters relating to the investments and persons who are investment professionals as specified in Article 19(5), Article 48, Article 49, Article 50 and Article 50A of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (the "Order"), or any other person to whom these materials may lawfully be distributed as a result of the exemptions contained within the Order from the restriction contained in section 21(1) FSMA or to anyone else other than someone to whom it would otherwise be lawful to do so.

These materials and information contained herein shall not constitute or form part of an offer of transferable securities to the public in the United Kingdom. These materials do not constitute an offer to sell or the solicitation of an offer to purchase securities, nor shall there be any sale of securities in the Company, in any jurisdiction in which any offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any jurisdiction including, without limitation, the United States of America.

This document does not purport to contain all the information that may be required or necessary to evaluate all the factors that may be relevant in connection with the proposed raising of additional capital by the Company as described in this document. Each recipient hereof must conduct its own investigation and analysis. Neither the Company nor any of their respective affiliates or representatives make any representation or warranty express or implied, as to the accuracy or completeness of the information contained herein. The Company and their respective affiliates and representatives expressly disclaim any liability arising in whole or in part, out of errors or omissions from the information contained herein.

Neither this document nor any copy of it may be taken or transmitted into any jurisdiction outside of the United Kingdom. In particular, neither this document, nor any copy, may be taken, transmitted or distributed, directly or indirectly, into the United States of America, its territories or possessions or passed to US Persons (as defined in Regulation S of the United States Securities Act of 1933 (as amended), United States residents, corporations or other entities. Distribution of this document in the United States may constitute a violation of United States securities law.

By accepting this document, you agree to be bound by the foregoing limitations.

Date: 08/02/2011

12 Pepperslade
Duxford, Cambridge CB22 4XT
United Kingdom
T: +44 1223 96 8180
E: info@pneumacare.com
W: www.pneumacare.com

1 Executive Summary

PneumaCare is a revenue-generating company based in Cambridge, UK. PneumaCare's products, the PneumaScan™ family, enables clinicians to access many different patient-types, many of which are not within the capabilities of current clinical devices.

PneumaScan™ is revolutionary technology based on novel 3D imaging technology developed by the University of Cambridge, UK. A non–contact respiratory monitoring system for physician assessment and clinical management has applications in a number of medical environments including intensive care and home monitoring. Using PneumaScan™, patients can be assessed remotely while breathing naturally or performing spirometric manoeuvres without the need to interact with or contact the device.

Lung disease is extremely common and potentially on the increase. It affects one in seven people in the UK resulting in over 24 Million visits to the General Practitioner (GP) per annum at a cost of £500 a year million to primary care providers in the UK alone. One form Chronic Obstructive pulmonary disease (COPD) (an umbrella term for a group of lung diseases that include chronic bronchitis, emphysema and small airways disease) is the fifth biggest killer in the UK and worldwide. Every hour COPD kills over 250 people worldwide. COPD is the only major cause of death whose incidence is on the increase and is expected to be the third leading cause of death worldwide by 2020 (exceeded only by heart disease and stroke).

Using novel Structured Light Plethysmography (SLP) imaging technology, PneumaScan™ “observes” chest wall movements and calculates volume changes over time based on. SLP works by projecting a grid pattern onto a patient’s chest area, whilst in a standing, seated or supine position. Two video cameras then record the changes in the projected pattern as the patent breathes. The video images enable a 3D model of the chest to be constructed that allows for volume and change in volume assessment. Similar to technology is currently becoming popular in the computer games industry. Quantification, yield respiratory rates, volumes and flows, which are presented in formats familiar to the clinician and conform to regulatory standards.

PneumaScan™ produces standard medical outputs for a broader portion of the population because it observes patients from a distance and does not impede the respiratory system as with current spirometer technology. Measuring from a distance means lower infection risk, less harm, reduced patient discomfort and minimal instrument running costs from having to replace or sterilise parts, which have contacted the patient. Moreover, PneumaScan’s dynamic 3D-imaging approach provides novel information and a fresh clinical perspective about the intra-thoracic motion during a breath, which has implications for both diagnostics and critical care monitoring.

Many diseases for the respiratory tract originate in childhood. These include asthma, cystic fibrosis, and neuromuscular disorders. Many current techniques for the measurement of respiratory function in very young children are time consuming and invasive. Even spirometry is difficult until the age of 6 or 7 years. Up to one third of patients of any age find the technique difficult and accurate measurements are currently inaccessible with current techniques.

PneumaCare's range of instruments include a continuous monitor of tidal volume and related parameters useful for the measurement of respiratory function in high dependency and intensive care settings in both adult and paediatric practice.

PneumaCare's first PneumaScan™ product targets an accessible worldwide market approaching $500M (48% of the monitoring devices market).

Data from up to 100 healthy individuals have been collected in the UK and shown to have a good correlation between standard spirometers in terms of tidal breathing and forced expiration. Individual testing using both techniques *at the same time* have shown excellent correlation of synchronous data points for spirometry measures, tidal breathing and forced expiration.

PneumaCare has been developed in conjunction with leading clinical practitioners. The Company has a strong IP portfolio based on non-invasive 3D imaging for assessment of respiratory function parameters.

PneumaScan™ will receive its CE mark in Q2 2011, with simultaneous filing for FDA 510k approval in Q4 2011. Initial orders have been received from the clinical community, and a number of commercial parties are in discussion regarding global distribution initiatives. The system is being constantly evaluated in clinical practice, currently at Addenbrooke's Hospital in Cambridge, Great Ormond Street Children's Hospital in London and in development laboratories at its design and manufacturing partner, Plextek.

The PneumaScan™ product will sell for in the region of £11,000 plus £700 in accessories, with a 30% COGS given high volume manufacturing.

PneumaCare has received orders initially for up to ten systems subject to the Company receiving a CE mark for the product, which has been applied for and is expected in April 2011. PneumaCare will sell its product via direct and distributor sales, as well as through OEM channels for parallel products.

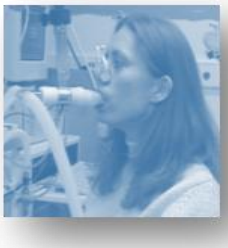
PneumaCare has been funded to date by Cambridge Enterprise, Cambridge Capital Group and a small consortium of private investors. In addition, the Company has received significant finance in the form of non-equity bearing grants.

PneumaCare is seeking to raise £2M for working capital to develop a commercial structure for advancing product sales globally, for completion of its regulatory approvals, particularly in the USA, product roll out and manufacturing, and to enable development of its product pipeline.

2 Technology

2.1 Background

Lung disease affects one in seven people in the UK[1] resulting in over 24 Million visits to the General Practitioner (GP) every year at a cost of £500 million per annum to primary care providers in the UK alone.[2] Lung function assessments by GPs and pulmonary specialists during these visits are vital for effective clinical decisions such as when to prescribe treatment, and the monitoring of treatment decisions. In the intensive or high dependency unit, decisions need to be continuously assessed to optimise clinical management.



Standard assessments require a patient to blow vigorously into a small tube while airflow is measured (Spirometry) or to be fitted with a mask which itself can interfere with natural breathing. Spirometry requires a patient to be awake, cooperative and able to follow instructions; it is therefore difficult to perform with children. Moreover, infants cannot be measured or monitored without direct contact.

Data from spirometry provides important clues to help distinguish obstructive pulmonary disorders that typically reduce airflow, such as asthma and emphysema, from restrictive disorders that typically reduce total lung volumes, including pulmonary fibrosis and neuromuscular disease.

Current approaches to lung monitoring have significant shortcomings:

- Can only be used in sub-populations
- Cannot be used in critically ill patients and
- Carry the risk of cross infection.

Due to these shortcomings, because of the considerable physical effort that is required by the patient in blowing into current instruments, up to one third of patients who could benefit from assessment are inaccessible with current techniques. Add to this running cost (from daily calibration, sterilisation, and consumables) and there are considerable limits to the clinical utility of existing market offerings.

Clinicians have voiced a need for an approach that offers faster screening, access to a broader patient population, and dramatically reduces the risk of a hospital-acquired infection.

2.2 PneumaCare's offering

PneumaCare's PneumaScan™ products are 3D-imaging instruments for non-contact clinical management, intensive care and homecare applications. PneumaScan™ uses proprietary Structured Light Plethysmography (SLP) technology to produce standard medical outputs for a broader portion of the population.

Measuring a patient's respiration non-invasively and from a distance means lower infection risk, less harm, reduced patient discomfort and minimal instrument running costs. The need to replace or sterilise parts that have contacted that patient is eliminated. Moreover, PneumaScan's dynamic-3D-imaging approach provides novel information and a fresh clinical perspective; for example regarding the

[1] The British Lung Foundation: http://www.lunguk.org

[2] British Thoracic Society (2006) - Burden of Lung Disease 2nd Edition: Respiratory disease costs the NHS and society £6.6 billion, £3 billion in costs to the care system, £1.9 billion in mortality costs and £1.7 billion in illness costs.

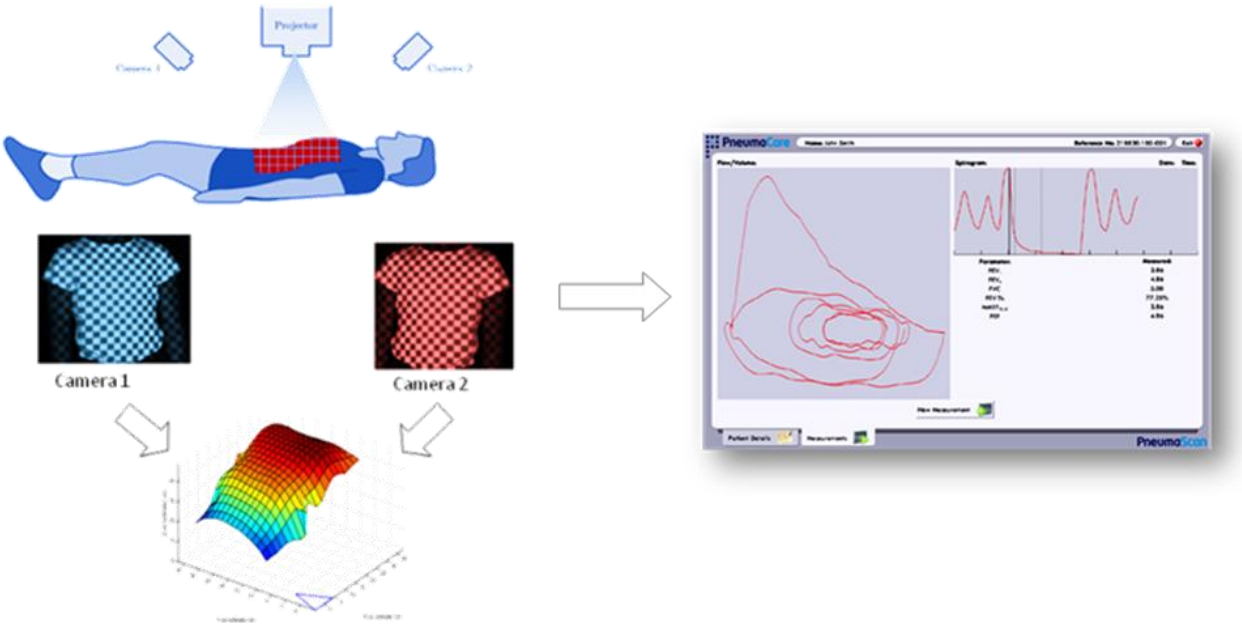
intra-thoracic motion during a breath that has implications for both physiological and neurological clinical cases.

Using PneumaScan™, patients can be assessed during standard exercises or while breathing naturally when in front of the device. For example, young children or breathing-distressed patients (such as those with cystic fibrosis or chronic obstructive pulmonary disease (who have trouble overcoming the resistance in a traditional spirometer) can be assessed while sitting or lying comfortably in front of the PneumaScan™ system. Feedback from several clinical groups has demonstrated the potential for non-contact approaches to allow clinical assessments of difficult to measure populations. For example, PneumaScan™ can monitor neonatal infants in incubators or evaluate cerebral palsy patients or the elderly who have difficulty performing the forced manoeuvres required by standard instruments. There are also applications in post-operative anaesthesia recovery, sleep apnoea and both critical- and home care- monitoring.

In addition to the assessment functionality, a future software enhancement will enable the existing PneumaScan™ hardware to be used as a device for real time respiration monitoring, charting and data management. This advanced device version will incorporate the enhanced functionality needed for critical care, advanced analysis applications and for meeting future hospital IT requirements. An enhanced system would address the monitoring of tidal breathing, respiratory rate and pulse rate of post-operative and intensive care patients.

2.3 Structured Light Plethysmography (SLP)

PneumaScan™ observes chest wall movements and calculates volume changes over time based on Structured Light Plethysmography (SLP) technology. SLP works by projecting a grid pattern onto a patient's chest area, while in seated or supine position. Two cameras record the changes in the projected pattern on the patient's chest from different perspectives. The result is a moving 3D model of the chest. The 3D model's movements are quantified, yielding airflows and respiration rates which are presented in formats familiar to the clinician and which conform to regulatory standards.



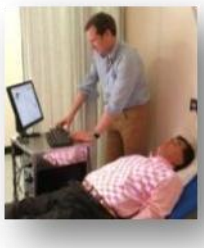
Clinical Advantages

The performance requirements of the PneumaScan™ instrument were defined by clinical staff at major UK hospitals who wanted a system that fits into their day-to-day practice and was applicable to all ages in all clinical situations.

The Clinical advantages of PneumaCare's non-contact 3D imaging approach:

Broader Patient Population

- Unconscious, uncooperative and tachypnoea patients
- Patients with breathing difficulties since the Pneumacare technology is non-invasive
- Very young children who have trouble following instructions
- Very old
- Neonatal babies in incubators
- Infectious and vulnerable



Richer Information

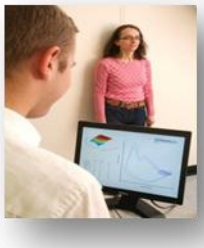
- 3D moving imagery of breathing
- Analysis of abdominal/chest regional movement
- Analysis of rate and extent of respiration

Lower Risk to Patient

- Lower cross infection risk
- Lower running cost

Simpler Operation

- Easily moved to the patient
- Can be used in parallel to other operations
- Patient can be standing, siting or supine
- Non-invasive: requires no active participation by the patient
- Does not alter or interfere with patient's natural breathing
- No complex calibration routines
- No complex training required



Lower Running Costs

- No consumables required
- Sterilisation not required

Clinical Demonstration

In a recent demonstration in Addenbrookes Hospital, Cambridge UK, volunteers were measured by both spirometry and PneumaScan™ simultaneously to allow comparison of the outputs of both techniques on a given breath. The volunteers were asked to perform a standard spirometry exercise, which involves taking a large breath and exhaling it as quickly as possible into a small tube held in the patient's mouth while the nose is pinched closed with a plastic clip. The amount of air forcibly exhaled in 1 second is called Forced Expiratory Volume 1 (FEV1) and has implications for restrictive conditions such as chronic obstructive pulmonary disease (COPD). The predicted values for a healthy adult of the volunteers' height and weight are on the left side of the table below.

The results show (see table below) that without any contact to the patient, or the need to hold tubes or nose clamps, PneumaScan™ is able to match expected outputs very well. The volunteers in

this study were healthy technicians who were very experienced in performing spirometry but who had not used the PneumaScan™ system prior to the test.

	Predicted	Spirometry		PneumaScan	
Volunteer	FEV1	Average	%SD	Average	%SD
A	3.98	4.12	1%	3.73	7%
B	3.92	3.64	2%	4.37	4%
C	2.39	2.41	2%	1.94	12%
D	3.92	3.77	12%	3.83	3%
Average	3.55	3.48	4%	3.47	6%

Figure 1 Comparison of PneumaScan™ with current standard methods

2.4 Products

The first PneumaScan™ product is a diagnostic (Class IIa) medical device intended to assist trained medical staff in the evaluation of patient breathing. PneumaCare is currently taking orders for this product and will be able to ship upon receipt of the CE mark expected in April 2011.

A software enhancement will bring added functionality, turning the same hardware into a critical care respiration monitor (Class IIb).

The hardware for the PneumaScan™ system is a Head Unit (containing the required video cameras and video pattern projector), together with a commercial grade PC and related peripherals (display, keyboard mouse). The Head Unit is easily mounted on a stand that allows it to be positioned in front of the patient (see below). Alternatively, the Head Unit can be used on a tabletop, mounted on a wall or ceiling above the patient's bed.

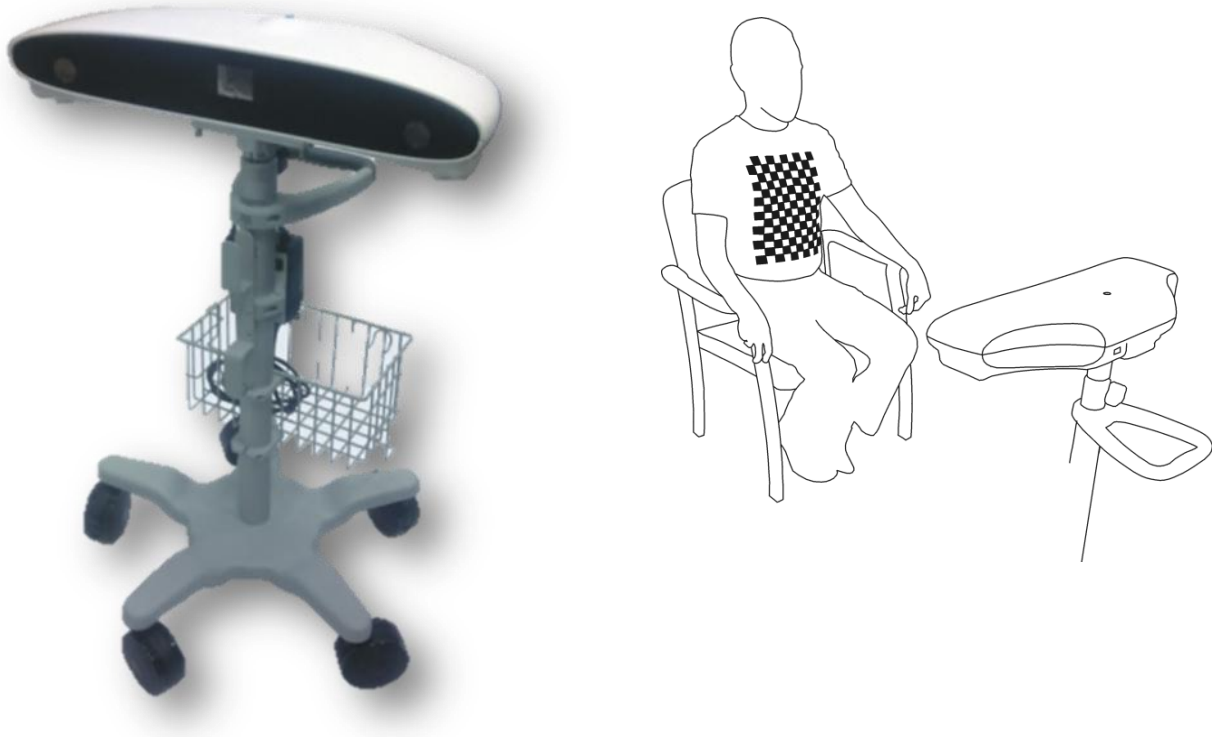


Figure 2 PneumaScan™ being used in the seated position

Product Name	Use	Primary Functionality	Patient Group	Expected Medical Class	CE Marking	FDA 510K
PneumaScan™ Spirometer	Measurement (Non-real time)	Spirometer equivalent measurements	Adults & children (cooperative)	IIa	2011 Q2	2012 Q1
PneumaScan™ Monitor	Monitoring	Critical care & post-operative anaesthesiology monitoring	Adults, children,	IIb	2012 Q1	2012 Q3
			Neonatal (non-coop.)	IIb	2013 Q2	2013 Q4
PneumaWatch Home/Mobile	In home and In-vehicle monitoring	Critical care monitoring and alert system	Adults & children	IIb	2013 Q1	

Figure 3 PneumaCare Product Pipeline; Instruments and Functionality

Future enhancements, largely software, will extent applicability further. For example, advanced analysis software packages will allow physicians to examine the intra-breath dynamics and plethysmography comparing movement in different regions of the torso that have diagnostic implications. A simple device using cameras much like those common in mobile phones could allow a patient to have a basic daily assessment in their own home after discharge form hospital. Tracking disease progress could be used in disease management and prevent unexpected emergency readmission.

The range of vital signs monitored remotely by the PneumaCare systems could, subject to clinical demand, be expanded by adding heart and temperature assessments. This functionality will be achieved with a combination of in-house development, which is underway and by using licensed technology.

2.5 Intellectual Property

PneumaCare owns intellectual property for the use of structured light as applied to medical applications, including breathing and structured light plethysmography (SLP). This patent application (GB 0822605.2, 3D Volume Monitoring Apparatus filed on 2008-12-08) covers the basic process, use of structured light, no markers attached to the object, cameras to capture and generate 3D images with an integral calibration step to allow accurate measurement of the image and an ability to measure the movement of the image. This contains a series of broad claims covering the whole area of dynamic motion capture and measurement. The patent is now proceeding through as an IPCT filing.

A review of IP has been undertaken on the progress of PenumaCare's patent application. Search reports have been received from the patent office and reviewed. A positive opinion on the novelty and inventive potential of the patent is available from the Company's patent attorney EIP Ltd (London).

2.6 Alternative Technologies

Traditional methods of respiratory function recording have been based on hardware designed over 100 years ago, namely the pneumatach, and software interpretations of this from the 1960-70s. By breathing through a pneumatach respiratory flow can be measured. Flow is integrated to yield the volume of a breath. Thus, parameters of tidal breathing and spirometry can be derived. These tests are used by a clinician in assessing chronic conditions such as asthma, pulmonary fibrosis, cystic fibrosis and other restrictive or obstructive disease. They are also used in monitoring and evaluating patients in anaesthetic and intensive care environments. However, despite technological advances in many industries, clinicians today still use technology from the 1970s for the vast majority of assessments of

lung function. These provide major issues in usability by some patient groups, and do not serve the critical care or general respiratory clinician fully.

Spirometry is the most commonly used lung function screening study. It is generally the clinician's first option, with other studies being reserved for specific indications. Most patients over the age of five can perform spirometry when coached by an appropriately trained technician in the ambulatory setting, physician's office, emergency department, or inpatient setting. It can be used for diagnosing and monitoring respiratory symptoms and disease, for preoperative risk stratification, and as a tool in epidemiologic and other research studies.

Spirometry requires a voluntary manoeuvre in which a seated patient inhales maximally from tidal respiration to total lung capacity (TLC) and then rapidly exhales fully until no further volume is exhaled at residual volume (RV).

Spirometers although used widely have significant drawbacks including:

- They are s invasive and require patient cooperation hence they are not applicable to vulnerable patients.
- Require co-ordination, as well as comprehension and co-ordination.
- Technically relatively easy but often needs training and repeated attempts.
- There exists the risk and danger of cross contamination.
- Calibration is complicated.
- They are both pressure and temperature dependent.
- A trained technician is required.
- Somewhat artificial, as a forced expiration is used to measure ordinary breathing.
- Undertaking the test can change what is being measured – e.g. causing wheezing.

Forced Spirometry is used in infants and involves sedating the child, and wrapping a distend-able, inflatable jacket over the chest and abdomen of the infant. When the infant is securely asleep, a facemask pneumatach is securely applied using a putty sealant. The chest is rapidly inflated by forcing air into the child’s lungs with a coordinated rapid exhalation achieved by the rapid inflation of the jacket. The procedure requires complicated calibration and has significant failure rate. This procedure cannot be done in relatively sick infants as it compromises patient safety. It is expensive, requires expert operators and is therefore only used in a handful of institutions throughout the world.

Body Plethysmography is a method of measuring lung volume relying on the principle that the volume of gas at a constant temperature varies inversely with the pressure applied to it. The primary advantage of body plethysmography is that it can measure the total volume of air in the chest, including gas trapped in bullae. Drawbacks include the complexity of the equipment as well as the need for a patient to sit in a small-enclosed space. A patient over the age of 10 is placed in a sitting position in a closed "body box" with a known volume. From the Functional Residual Capacity, the patient pants against a closed shutter to produce changes in the box pressure proportionate to the volume of air in the chest. Body plethysmography has significant drawbacks:

- The patient has to be placed in a small volume box and breath into a mouth piece
- It is not applicable to small children or critical care patients.
- It is highly specialized /expensive equipment costing £30,000-£40,000
- Not an easy technique for patient as Claustrophobia and access (not possible in a wheelchair) are major problems

Helium/Gas Dilution techniques are based on the inhalation of a known concentration and volume of an inert tracer gas, such as helium, over 7 to 10 minutes. The final exhaled helium concentration is diluted in proportion to the unknown volume of air in the patient's chest giving an

indication of the volume left in the lungs after expiration. Helium dilution is sometimes used on patients over 10 when a plethysmograph is not available. Gas dilution techniques take up less space and as the patient is not enclosed during the measurement, there are no problems with claustrophobia or access as with body plethysmography. Gas dilution may underestimate total lung capacity when there is gas trapping. The systems cost £15,000-20,000.

Optoelectronic Plethysmography involves placing a number of fluorescent markers onto the chest and abdomen of the subject. These markers enable a 3D reconstruction of the surface and hence volume computation. The individual is monitored on a number of high-speed digital cameras (minimum of 6) which can be limiting within the clinical environment. This was first described in 1996 and has found a number of applications in the medical literature. A significant advantage common to all optical methods is that calibration is not dependent on temperature, pressure or humidity, but requires reference objects of known size and/or shape to be placed within the field of vision.

Limitations of this very accurate and sophisticated method are that it relies on the accurate placement of a sufficient number of markers (a significant set up time) directly on the patient. These markers have to remain in position during investigative procedures. Cost for the systems can be over £100,000 and require the patient be transported to a dedicated observation area.

Approach		Application					Methodology									
	Measures*	Adult	Paediatric	Infant	Vulnerable	Ventilated	Non Invasive	Patient friendly	Self-calibrating	Rapid data collection	Avoids infection risk	Avoids mouthpiece (Pneumotach)	Avoids Sedating infants	Risk	Cost
PneumaScan (SLP)	1,2,3,4,5	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	Low	Low
Spirometry (pnemotach)	2,3,4		☑					☑		☑				Low	Med
Forced Spirometry (sedation and constriction)	2,3,4			☑										Med	Med
Helium Diffusion	3,4						☑							Low	Med
Body Plethysmography	2,3,4,5,6	☑		☑									☑	Low	Med
Gas Monitors (C02, Humidity)	3,7	☑				☑	☑			☑				Low	Med
Opto-Electronic Plethysmography (OEP)	1,2,3,4,5	☑				☑	☑					☑		Low	Med
Blood gas monitors	7	☑				☑		☑				☑	☑	Med	Med

*1-Central drive, 2-Tidal volume, 3-Flow/Volume, 4-Airway Resistance, 5-Lung Volume, 6-Anatomy, 7-Gas Exchange

Figure 4 PneumaScan's functionality compares well to alternative approaches for lung assessments

3 Business Development

3.1 Strategy

The medical community is naturally conservative. Our market access strategy is to engage with the key opinion leaders (KOL's) at leading research hospitals who set the clinical standards to which other doctors must work. Once established as a part of day-to-day operations with these first adopters, PneumaCare will be in a position to seek business from specialist respiratory clinics and general practitioners as well as establish relationships with distributers, OEM manufacturers and licensors.

PneumaCare has attracted the attention of research groups seeking both novel information about respiration and non-invasive methods in support of other projects such as product development. PneumaCare will maintain a focus on cash-generating R&D support that also advance the utility of the PneumaScan™ software.

3.1.1 Direct Sales

The Company's first product is intended to provide direct end-user sales to sites, which may be used for clinical research and trialling, as well as clinical sites that will use the system in practice. These sales will be with a PneumaCare- badged device and will be sold both direct and via a distribution network, initially in Europe and Asia and secondly in the North American market, dependent upon obtaining local regulatory approvals.

3.1.2 OEM

PneumaCare sees potential in licensing aspects of the dynamic motion measurement technology to other healthcare providers so that they can integrate the Company's measurement applications into their own devices. This will be done on an upfront technology access fee plus royalty basis and could form a valuable additional set of income streams.

PneumaCare will licence specific products to companies such as SeikoWave, Philips, Siemens, WellPoint and GE Healthcare while retaining the rights to future improved versions using the same hardware with updated software applications.

PneumaCare will also in certain territories develop OEM relationships with medical technology suppliers for whom they will (1) manufacture and badge with the partner's logo and (2) enable manufacturing by the partner. These sales may attract a somewhat lower margin but with higher volume potentially as they will utilise the OEM partners sales and support network.

Two potential licensors have already approached PneumaCare:

- Seikowave - A Japanese structured light component producer, SeikoWave, has proposed producing PneumaScan™ instruments under licence for the Japanese market.
- WellPoint - suppliers of HR/corporate health screening kiosks have also proposed integrating PneumaCare's lung measurement function into their existing products. A licence deal with WellPoint could be worth £70K to £150K a year in royalties to Pneumacare.

3.1.3 R&D support

Great Ormond Street Hospital London

PneumaCare is collaborating with Prof Janet Stocks at Great Ormond Street Hospital (GOSH) London who is a key opinion leader in European respiratory medicine and is currently establishing new norms for children's lung health. We have had a prototype instrument in GOSH since early 2010 which has been used to assess young children with Cystic Fibroses.

PneumaCare has also begun discussions with Dr. Martin Elliott, an anaesthesiologist, at GOSH about the acquisition of a significant number of instruments from the Company for use in monitoring anaesthetised patients.

GSK

There is active interest from large pharmaceutical companies in accessing technology that can provide better monitoring and metrics of lung function within the respiratory medicine development teams. Discussions have focussed on the specifics of drug delivery from inhalers and the tracking of asthma medication efficacy on lung function in the first 5-45 minutes of treatment (currently difficult or impossible to measure objectively). A collaborative demonstration project with GSK has started in Q1 2011. If successful PneumaCare would propose longer-term support for product development specific to GSK's needs, which are likely to be in the area of clinical trials

Cambridge University Veterinary School / Novartis

The Vet school in Cambridge have already trialled a research PneumaScan™ device. A successful proof of concept study has been completed on small mammals which has applicability to human drug development studies. The Vet School has applied for funding to buy research devices to extend the work that might be sponsored by Novartis. Novartis has an interest in using PneumaScan™ for drug testing using small animals.

3.2 Commercial Traction

Customer	Activity / Revenue	Status
NHS **Instrument sales, licence revenue and services**	Identified: 35+ initial customers 100 potential instrument sales in next 3 years £750k-£1.5M in revenue	First order received from Addenbrookes Collecting orders and expressions of interest from close customers for delivery in Spring and Summer Direct marketing efforts to begin in Q1 2011
SeikoWave **Licensing and production in Japan**	Licensing can £50K upfront fee milestone payments per unit royalty fee thereafter	Signed Letter of intent Providing SeikoWave equipment to PneumaCare in February 2011
GSK **Product development pot market evaluation/marketing**	Instrument sales and service revenue £25-50K service fees	Two groups at GSK are interested Drug delivery (inhaler) device development project Device evaluation application. Demonstrations in December and January .
Cambridge University Veterinary School/ Novartis **Research instrument sales/ R&D support**	Instrument sales & clinical data	Quotes have been sent Awaiting their securing funding from both research and private sector sources
WellPoint **Health kiosks for corporate healthcare services**	Licensing £70K year 1 £150K year 2	Initial proposal of 5% per unit Next step is engineering evaluation to begin in December to determine upfront effort

Figure 5 PneumaCare's active commercial engagements

In 2009 PneumaCare Completed an R&D contract for the UK Ministry of Defence (MoD) successfully demonstrating a mobile version of PneumaScan™. There is continued interest in acquiring an instrument however, this is subject to MoD funding. PneumaCare have also been approached by BabyCare2.0, a Philips spinout, about developing a consumer infant crib monitor for the European market. They are currently seeking funding for the project.

4 Market

4.1 Trends

The global anaesthesia and respiratory devices market is forecast to exceed $13 billion by 2016 with a Compound Annual Growth Rate (CAGR) of 9% from 2009-2016. The increasing patient population suffering from Asthma, Obstructive Sleep Apnoea (OSA) and Chronic Obstructive Pulmonary Disease (COPD) and the availability of other medical devices to make early diagnosis, drive the market.

The respiratory monitoring device market (excluding consumables) was valued at $743M in 2010. A growing patient population, home care services and healthcare providers focusing on cost containment and preventative therapies influence the demand for respiratory devices.

One of the prime drivers for this market is the increasing incidence of diseases such as COPD and asthma. The fourth biggest killer in the European Union, between 200,000 and 300,000 people die of COPD every year. In terms of productivity, the European Union has determined that productivity losses in Europe due to COPD amount to over €25.0 billion annually. There are around 30 Million people in Europe suffering from asthma, 2 Million of which present severe symptoms. The European Respiratory Society estimates that the total cost of asthma in Europe alone is over €17 billion Euros and the loss of productivity due to poor asthma control is over €9 billion annually.

Another major factor propelling the growth of this market is the need to discharge patients from hospital or keep them from entering the hospital in the first place. There is a growing desire to keep the patient out of the hospital and in their own homes. The

4.2 Product Segmentation

The $700M per year respiratory monitoring device market can be segmented into the following areas: Flow meters, Regulators, Clinical Screening Spirometers, Disposable incentive spirometers, Infant sleep apnoea monitoring and sleep apnoea diagnostics.

Oximetry is the only monitoring market segment that is not addressable with PneumaCare's approach. PneumaCare's first product targets a world-wide market of $357M (48% of the monitoring devices market).

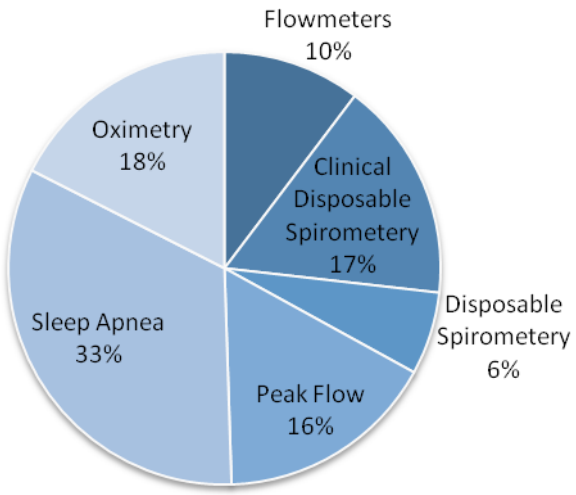


Figure 6 Lung Assessment and Monitoring Market Segmentation

4.3 Competitive Analysis

Price is a key competitive factor in this market. The vast majority of spirometers are marketed through distributors. This type of distribution structure creates higher price elasticity in the marketplace. Some respiratory monitoring devices such as flow meters, regulators, peak flow meters, and disposable incentive spirometers are considered commodity products and have relatively low profit margins. Manufacturers are motivated to reduce the costs of production in order to gain higher margins, expand into different market applications in respiratory monitoring, and not rely so heavily on commodity products as their main source of revenue.

The market for spirometer products has the following general characteristics:

1. More than 75 spirometer products on the market are manufactured by 21 companies globally.
2. Many of the major players in the respiratory device market (e.g. CareFusion, Jones Medical) have spirometer products in their portfolio.
3. Newer products (e.g. PC based spirometers), have undergone extensive software upgrades; however the basic technique has remained the same for over thirty years.
4. Market growth is being driven by a global campaign to screen for early stages of Asthma and COPD.

Current leading players in the spirometry market include CareFusion, Jones Medical and VitaloGraph. CareFusion have the most extensive range of products (12 handheld, desktop and PC based spirometers) is the leading the way in offering a large range of solution for physicians under a single company offering. In a competitive environment, PneumaScan™ would have additional advantages over the current leading spirometry products by being:

1. Easier to use
2. Non-invasive and non-contact
3. Does not impede breathing or require any breathing effort on the part of the patient
4. Able to screen and monitor a broader patient population
5. Able to provide physiological information which is not obtainable with existing methods
6. Able to reduced risk of cross infection
7. Cheaper to run over the product lifetime

From the product positioning perspective, it is clear that if PneumaScan™ were to be launched as a clinical screening spirometer it would not have to directly compete with (and take market share from) established spirometer products. Although PneumaScan™ will economically provide spirometric information; the compelling differentiation is the ability to recruit novel respiration information in all patient populations many of which are inaccessible by current respiratory devices.

4.3.1 Market Structure

The respiratory monitoring device industry is consolidating. As a result, many small companies are finding it more difficult to compete on price. The market share of leading companies is shown in the table below. The PneumaScan™ family of products, with their enhanced information provision capabilities, would augment the offerings of several market players.

Company	Total Sales ($M)	Anaesthesia and respiratory device sales ($M)	Market Share (%)	Sales Growth rate (%)
Philips Respironics	1290	1290	17	14
ResMed	1100	920	13	19
CareFusion	1040	607	9	19
GE Healthcare	4490	560	8	16
Smiths Medical	834	333	5	19
Covidien	10400	224	3	2
Other		3266	46	
		7200	100	

Figure 7 Global market shares: anaesthesia and respiratory device market

4.3.2 Pricing

The purchase of respiratory instruments such as spirometers and body plethysmographs involves not only the instrument itself, which in the UK can be as little as £750 for a screening level instrument and up to tens of thousands of pounds for advanced diagnostic and research grade systems. In addition to the instrument, supporting software and training are typically required. The total purchase price can be up to twice the cost of the instrument itself. The yearly running costs (service contracts and consumables) are on the same order of magnitude as the instrument purchase price. These costs are detailed in the table below.

The PneumaScan™ instrument also has a mixture of initial instrument costs and annual running costs. PneumaScan™ is priced so that it is comparable to current market offering for spirometers and is well within normal signature authorities of the target customers. The initial PneumaScan™ product will be sold directly to consultant physicians who have consistently provided feedback on price. This price is in the higher end of the price range. However, a key reason for adopting PneumaScan™ is not only as one-for-one spirometer replacement but also as a capability extender for the customer's clinic thus providing value for the end user and improved patient acceptability and adherence.

The instrument itself will cost around £11,800 to the customer with an additional £2,000 in recurring revenue (servicing and software license). The bill of materials and assembly costs for the instrument are £4,000 but expected to fall to £3,100 at volume production; initially 66% and 73% at volume gross margins respectively.

The cost of materials is expected to reduce due to both our cost-engineering efforts and the general trend for imaging equipment to increase in performance and reduce in price. This price reduction is being driven by the need for small projectors and cameras in the mobile computing market.

PneumaCare have asked respiratory consultants to review their suggested costing as if they were reviewing a new spirometer for their current requirements. The only pushback received was regarding the price of a training course.

Spirometry Pricing	Typical price for a Spirometer	PneumaScan
Unit price	£750-£40,000	£10,700
Accessories	£300-£650	£700
Software licence	£400-£3,000	£2000/year
Servicing	£200-£400/year	£200/year
Consumables	£600-£3,500/year	

Figure 8 Spirometry and PneumaScan™ pricing

4.3.3 Purchase criteria

PneumaCare have gathered the criteria potential customers use when evaluating any spirometer criteria for purchase. Figure 11 below compares our capabilities with those criteria.

The require attributes are a mixture of regulatory performance, and usability requirements as well as economic constraints.

Criteria	PneumaScan
Does the spirometer allow visualisation of the flow-volume loop?	☑
Are ATS/ERS criteria for spirometers met?	☑
Can the system provide consistent and reliable results?	☑
Is the spirometer of suitable proportions (dependant on area to be used, e.g. static within a lab, ambulatory for use on wards or in the community)?	☑
Is a printable report available?	☑
Can the system be networked to other systems and on to the hospital network?	☑*
Does the system have enough memory to hold the amount of data required (currently 2GB)?	☑
Can the system communicate with other equipment within the department should testing on multiple systems be required?	☑
Can the system be easily sterilised?	☑
Is the system of reasonable cost?	☑
Does the system have encouragement programs for children or those who are unable to grasp the technique required?	☑
Does the manufacturer provide reliable and quick response servicing?	☑
Are consumables cheap and readily available?	☑
☑☑- **has been shown in academic papers, to be confirmed in clinical trials and first sales** ☑* - As an upgrade	

Figure 9 Main criteria used by NHS clinicians when deciding which spirometer to purchase

4.4 Market Summary

Number of companies	21 identified
Number of products	76 (Handheld, desktop and PC based)
Types of competitor	Large and small medical device manufacturers
Distribution structure	Vast majority through distribution
Tiers of Competition	2
Notable acquisitions and mergers	Viasys Healthcare – Micro Medical ($39M) Cardinal Health – Viasys Healthcare ($1.6B)
Competitive factors	Price, Product features, size and ease of use

Figure 10 Spirometry Market Summary

The market contains a healthy mix of vendors who manufacture the entire range of respiratory devices and vendors who focus on the design and development of spirometers alone. The selection of the correct spirometers is extremely important as spirometric assessments require considerable effort from the patient and it is vital to avoid errors in the diagnosis. The spirometers can be of two types, those that are used in hospitals and those that can be used for home care purposes. The key factors influencing market domination of certain companies is their product portfolio. Having versatile products, or a range of solutions catering to a broader segment of people, helps the company to obtain a better presence in the market.

5 Company Information and History

5.1 Company Information

PneumaCare Limited is registered in England and Wales with Company number 06515570 and registered offices at: 12 Pepperslade, Duxford, Cambridge, CB22 4XT. VAT registration number: 978 5358 54. Its current Directors are William Mason, Ward Hills, Anthony Nolan, Maher Khaled, and Richard Iles. Management accounts are prepared monthly by BCS, Copley Hill Business Park, Babraham, Cambridge. Mills & Reeve, Cambridge lawyers, provide legal services.

5.2 Team

PneumaCare's team has access to key both opinion leaders (KOLs) via its founding within the medical community. It has advanced rapidly due to the engineering expertise of both Cambridge University and Plextek Ltd that has been captured by PneumaCare's IP, regulatory and operational structure. Prior to product launch in early 2011, a commercial team will be added to carry the momentum onwards.

5.2.1 The Core Team

Dr Bill Mason, Chairman, Considerable experience spanning the successful strategic and commercial development and value realisation of healthcare-focused industries. He has a strong history of founding, funding, developing and exiting from a number of both private and listed companies with strong experience in the medical technology and diagnostics sector.

Dr Ward Hills, CEO, has over 20 years of expertise in development and commercialisation of technology. He has worked with Cambridge and other Universities as well as MoD, medtech, and venture capital firms. He has been involved in the founding of numerous start-ups and products, several of which have attracted revenues of £10's of Millions.

Dr Richard Iles, CMO, a Consultant in Respiratory Paediatrics in Addenbrooke's Hospital Cambridge with over 20 years' experience. He has clinical responsibility for infants and children with chronic respiratory disease, asthma, cystic fibrosis, and prematurity. He has raised over £2.5 million in grants.

Dr Simon Baker, COO, has implemented development, and manufacturing programmes, regulatory registrations for healthcare products. Simon has managed a number of successful multi-million pound government (TSB) and MoD projects. He is on the National Innovative Manufacturing Research Centre (IMRC) industry advisory board.

5.2.2 PneumaCare 's Partners

Cambridge University Engineering Department is collaborating with PneumaCare in the development of the device and components, data capture systems, modelling and analysis.

A collaborative agreement with Plextek Ltd., a well established engineering consultancy specialising in electronics, imaging and product design and who are a shareholder in PneumaCare, provides the expertise and engineering processes required to develop the technology into a commercial system ready for large-scale manufacture. Plextek are also well-experienced in small volume production, in this case up to 100-200 units.

Great Ormond Street Hospital (GOSH) has incorporated PneumaScan™ into its programme of novel technology evaluation

Rachel Bonner, Respiratory Technician. Seven years' experience in the NHS making lung function assessments. She is currently using PneumaScan™ for extended periods in the laboratories of KOLs, such as GOSH. She provides feedback and active user experience input to the design process.

Willem de Boer, Software Programmer recently earned his master's degree working on the calibration and quantification of PneumaScan™ measurements. Prior to that, he worked at Microsoft Research developing imaging applications. He supports our algorithm and software coding efforts.

Dr Joan Lasenby is a lecturer in Cambridge University's Signal Processing Group. She developed multiple camera motion capture systems and 3-D reconstruction of models. She is a co-founder of Cambridge University start-up company Geomerics that has raised over £2M in capital. Her team develops algorithms for capture and interpretation of PneumaScan's 3D data.

Dr Jonathan Cameron is a Research Associate at Cambridge University working on wireless sensors for sport. He assembled the CE marked Class I medical device. Later this year he will be supported on a full time ESPRC KTN secondment to PneumaCare. He chairs PneumaCare's research group.

Dr Colin Smithers is CEO of Plextek and has grown that business to over 100 employees and £30 million in revenue. He has over 25 years industry experience of taking an active role in guiding the development of custom product and system solutions. He is a NED of PneumaCare. Plextek's team of engineers is responsible for delivering the hardware and software ready for the Class IIa clinical trials.

Colin Forster, Technical Project Manager at Plextek, has over 20 years' experience in managing product developments through to manufacture, with experience in imaging, video and display systems. He is managing Plextek's engineering team activities under Plextek's ISO9001 quality system, to deliver the PneumaScan™ system compliant with medical regulatory and safety requirements.

Dr Graham Maile is head of Plextek's Strategic Consulting group and provides specialist advice regarding IP, commercial positioning and business strategy. He has over 30 years' experience in technology development and introduction of new products and has worked extensively with venture capital and corporate investors evaluating technologies and markets and in conducting due-diligence. He has a PhD from the University of Cambridge and is a Chartered Engineer and a Fellow of the IET.

6 Operational Plan

6.1 Product Development

- Established a clinical trials facility in Addenbrookes Hospital Q4 2010.
- Completed trials for data package to register PneumaScan™ as a Class IIa device. Q4 2010.
- Device clinical trials-ready - December 2010
- Clinical trials – February 2011
- Class IIa approval - April 2011
- Commercial team in place – Q2 2011
- First UK Sales – May 2011
- US Sales (FDA 510k) – Q4 2011
- First US Sales – Q1 2012

6.2 Regulatory Approvals

PneumaCare's clinical studies are validating PneumaScan™ against standard measurements of respiratory function obtained with spirometry in patients aged 6-80 years. Successful validation will show a correlation of 0.99 between the two measurements. This data will be used to extend clinical claims to cover children and adults as a Class IIa device.

Statistical analysis, analysis of complex data set relationships and the development of further pattern recognition is being carried out by the Cambridge University Engineering Department Signal Processing Group with support on complex statistical analysis from Harvard School of Biostatistics.

Data from up to 100 healthy individuals has been collected at several sites, including Addenbrookes Hospital Cambridge. PneumaScan™ has shown good correlation between standard spirometers (Pneumatach and Streptolite) in terms of tidal breathing and forced expiration. Individual testing using both techniques *at the same time* have shown correlation of synchronous data points of up to 0.99 for spirometry measures, tidal breathing and forced expiration.

Data sets against current standard methods on infants (controls and patients with cystic fibrosis) are now also being collected at Great Ormond Street Hospital London.

Papers have been published at the UK, US, and Europe at the British Thoracic Society (BTS) 2009, 2010, American Thoracic Society (ATS) 2010 and European Respiratory Society (ERS) 2009, 2010. PneumaCare and its partners will continue to disseminate information collected via peer-reviewed journals. Normal data sets will be shared with the ERS/ATS Task Force and made available to academic collaborators in Edinburgh, London, Liverpool and Cardiff.

6.2.1 European CE Marking

PneumaScan™ is a Class IIa device meaning that CE marking of the device must be achieved through a notified body that reviews and approves the company prepared Technical File. PneumaCare has created a compliant quality system for in-house development and manufacture under the ISO Medical devices Quality Management Systems standard (ISO 13485). The notified body is The British Standards Institute (Hemel Hempstead, UK) will audit PneumaCare for CE marking against ISO 13485 in April. The CRO Gregory Fryer Associates

(Cambridge UK) will monitor the trial with statistical analysis being performed by Professor David Harrington of the Dana-Farber Cancer Institute (Boston, MA).

North America – FDA Approvals

Application for approval will take the form of an FDA 510(k) application to the Food and Drugs Administration citing product similarity with existing spirometry devices but using a novel technique to determine the breathing of the patient. Initially the most appropriate regulations/codes for the Pneumacare System are the diagnostic (868.1840, BZG) and/or monitoring (868.1850 BZK) spirometer codes.

In order to gain market clearance for the Pneumacare System by 510(k) premarket notification comparative clinical data versus a predicate spirometer device will be required to demonstrate effectiveness. The quality framework in which PneumaCare designs and manufactures will be subject to Good Management Practices (GMP), Establishment Registration and Special Controls and is subject to Premarket Notifications. Pneumacare is working with Medical Device Management (Braintree, UK) and Gregory Fryer Associates to prepare its quality framework for FDA approvals.

There is a possibility that FDA might issue a Not Substantially Equivalent determination due to the significant technological differences of the Pneumacare system compared to conventional spirometers. In this case Pneumacare would then need to request a risk-based *de novo* classification of the product into Class II within 30 days from the receipt of the NSE determination. The de novo process has a 60-day review period after which Pneumacare would be free to market the device assuming the application is successful.

Subsequently the breathing frequency monitor code would be likely to be applicable for intensive care applications with an alarm function and a further 510(k) would be required.

6.3 Marketing Plan

A commercial director will be hired within 6 months of closing the investment to manage the expansion from the focused KOL marketing to the broader market.

PneumaCare's strategy is to establish first sales of the Class IIa-approved device, for clinical use, to the customers who have been working with the Class I (research) device.

PneumaCare has spent the last two years working alongside technicians and KOL doctors in the NHS in order to understand how, and why, they would purchase our product. Data from hospital and university studies on the PneumaScan™ systems have been presented at several major professional meetings. PneumaCare has had many doctors proactively approach the Company after such presentations. These first adopters represent around £1.5 million in revenues over the next three years. Comments received include:

- *"When can we buy this"* – Audience question at ERS presentation (A KOL core group)
- *"We should have this above every ITU, post op bed*" – Addenbrookes Anaesthetics
- *" This would complement our sleep lab and assessment of NM patients "* – Papworth Hospital Cambridge
- *"We would like to help you develop this to suit our needs*" – Great Ormond Street Hospital London.

The result of this considerable contact with our customers is a growing database of customers who have expressed an active interest in acquiring the Company's instruments. Gaining credibility with

these first adopters has given PneumaCare the standing required to enter the specialist lung clinics market.

PneumaCare have already had interest expressed from over 35 customers in these, and other organisations. Once established in this market the higher volume GP market and anaesthesiology monitoring markets can be addressed.

Marketing methods that have proven useful in establishing this initial market interest will be expanded on to include:

- Establishing further presences in key clinics in the UK then abroad in order to provide venues for:
  - training,
  - commercial demonstrations as well as
  - gathering customer feedback about current and future product features and
  - data collection supporting publications on the utility and new applications of PneumaScan™ .
- Presenting data at professional conferences has proved to be a very good means of directly addressing the customer population
- Attendance at medical device conferences will be used to promote potential partnering opportunities
- Supporting papers and advertisements will be places in professional trade publications communicating the economic advantages of PneumaScan™ to increase product awareness

PneumaCare has had several approaches from North America, Asia and India. A key early marketing activity will be to expand on existing relationships with KOL's in these markets to institute a presence that could be supported by local distributers for product delivery.

7 Financial

7.1 Profit & Loss

	Year 1	Year 2	Year 3	Year 4	Year 5
Income					
System income End User	0	248,000	520,800	1,116,000	1,488,000
OEM Income	0	0	1,430,000	3,090,000	4,790,000
Milestone Payments	0	0	0	0	0
R&D fees	176,236	73,674	0	0	0
	176,236	321,674	1,950,800	4,206,000	6,278,000
Cost of sales					
System sales End User	0	65,657	137,879	295,455	393,941
Consumables		8,000	74,800	146,000	218,000
R&D fees					
	0	73,657	212,679	441,455	611,941
Gross profit					
System income End User	0	174,343	308,121	674,545	876,059
OEM Income	0	100,000	1,350,000	5,750,000	10,500,000
Milestone Payments	0	250,000	250,000	250,000	250,000
R&D fees	176,236	73,674	0	0	0
	176,236	598,017	1,908,121	6,674,545	11,626,059
OPEX					
R&D	(484,348)	(829,857)	(737,281)	(572,217)	(568,785)
G&A	(97,555)	(705,628)	(797,996)	(699,546)	(699,546)
OPEX Total	(581,904)	(1,535,485)	(1,535,278)	(1,271,763)	(1,268,331)
EBITDA	(405,668)	(937,468)	372,843	5,402,782	10,357,728
Depreciation	0	(12,100)	(34,885)	(49,742)	(59,992)
Grant income	174,000	73,000	0	0	0
Interest					
PBT	(231,668)	(876,568)	337,958	5,353,040	10,297,737
Taxation	0	0	0	(256,243)	(910,925)
PAT	(231,668)	(876,568)	337,958	5,096,797	9,386,812

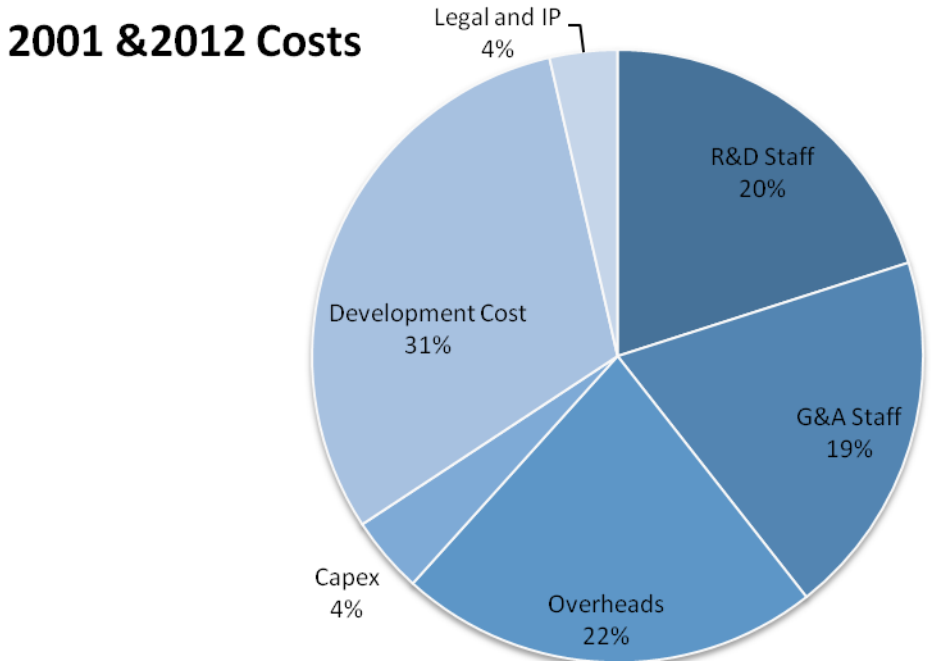
7.2 Cash Flow

	Year 1	Year 2	Year 3	Year 4	Year 5
Opening cash	**66,385**	**45,873**	**(1,174,693)**	**(1,028,082)**	**1,419,907**
Inflows					
Receivables	0	297,600	**2,054,960**	4,429,200	6,575,600
VAT	**52,636**	**122,795**	**72,312**	**(92,423)**	**(177,605)**
Milestone Payments	**0**	**0**	**0**	**0**	**0**
R&D fees	**211,483**	**81,041**	**7,367**	**0**	**0**
Grant income	**174,000**	**73,000**	**0**	**0**	**0**
Interest income	**0**	**0**	**0**	**0**	**0**
Share Capital	**205,000**				
Outflows					
CAPEX	**0**	**(80,000)**	**(56,101)**	**(31,925)**	**(30,038)**
Payables	**(527,301)**	**(1,090,612)**	**(1,038,920)**	**(725,145)**	**(682,768)**
Staff payable	**(136,331)**	**(550,735)**	**(680,328)**	**(690,263)**	**(700,497)**
Cost of sales	0	(73,657)	**(212,679)**	**(441,455)**	(611,941)
Corporation tax	**0**	**0**	**0**	**0**	**(256,243)**
Prepayments	**0**				
Closing cash at bank	**45,873**	**(1,174,693)**	**(1,028,082)**	**1,419,907**	**5,536,417**
Cash generation	**(20,512)**	**(1,220,567)**	**146,612**	**2,447,989**	**4,116,509**

7.3 Assumptions

A full financial model showing assumptions leading to the above projections is available on request.

7.4 Use of Funds



7.5 Identified Risks

Potential investors should not rely uniquely on the information contained in this placement document in assessing whether or not to invest. Among other factors, potential investors should consider the following specific risks. Investment in early stage technology companies offers significant risk and investors should be prepared to lose all or part of their investment.

Risk	***Mitigation***
Technical • Further development may take longer or cost more than plan • Developing instruments for large-scale manufacture with an acceptable cost for the market may not be possible.	• Company quality system (also required to achieve regulatory approval) • Continue to subcontract specialist tasks • Regular project and cost engineering reviews
Clinical • End-user trial may require additional functionality • Operators not using the instrument correctly	• Continue direct contact with customer groups • Modular software design that can be augmented efficiently. • **Training operators on the similarities and differences in non-contact monitoring from traditional invasive approaches**
Regulatory • Regulatory approval may require unexpected clinical data • Regulatory process may be reviewed and changed during the development period	• As the device is non-invasive and cannot directly harm the patient, further clinical data is very unlikely to be required. • New standards, which we are working to, were introduced in 2010 it is unlikely they will be material updated in the near future.
Commercial • Sale price assumptions may be incorrect	• The utility to specific users could vary in

	different clinics. Customer feedback will continue to be gathered so that hardware and support pricing can be adjusted.
• Purchasers may be unwilling to buy from a small company with a new technology.	• Relationships with both OEM producers, distributors and leading healthcare providers will be developed in order to give confidence to new customers.
Political/environmental • Government healthcare strategies may negatively impact products' potential	• PneumaCare's products are targeted at a specific and sustained service provision • The ability to address a broader patient population than exiting market offering fits well with the current desire for healthcare provides to do more with less capital.

7.6 Existing Shareholders and Pneumacare Finance

Pneumacare has a small group of investors who have invested to date about £440,000. This has resulted in the following shareholder structure:

	Round 2 Fully Diluted	
Share Price	£ 50.0	
Valauation £(,000) Pre Money	£ 1,218	
Post Money	£ 1,218	
	Shares	Shares
		%
Shareholder		
Founders	10371	43%
Option Pool	342	1%
University Team	1038	4%
Plextek Limited	3625	15%
Cambridge Enterprise	2875	12%
Cambridge Capital Group	2050	8%
Individuals	4062	17%
Totals	24,363	100%

In addition, the Company received non-equity bearing grants from the East of England Development Association and from the Ministry of Defence, totalling £335,000 in total.

7.7 Exit

Whilst the directors believe that the company has significant potential as an independent entity and could prove to be an IPO candidate, they consider the most probable exit for investors to be a trade sale to a major surgical equipment supplier within a 3-year timeframe from initial investment.

There are a number of key players in the respiratory care and analysis market, and potentially there are also new entrants. These will be targets both for strategic global commercial relationships as well as potential acquirers for PneumaCare. These include the main players in medical device monitoring technology:

Philips Respironics	Draeger
Covidien	Cook Group
GE Healthcare	Smiths Medical
CareFusion	Edwards Life Sciences
Non Invasive Monitoring Systems	Allied Healthcare Products
ResMed	Fresenius
Abbott	Medtronic
Siemens Medical	Boston Scientific