



Champions Trophy

Case Competition 2012



Case 3: Fisher & Paykel Healthcare

3 February 2012

Case prepared by Mr Luke Bulling under the supervision of Mr Sunny Gu. This case has been prepared solely for the Champions Trophy Case Competition. All data in this case has been obtained from publicly available sources and Fisher & Paykel Healthcare. This case is not intended to serve as an endorsement, a source of primary data or an illustration of effective or ineffective management.

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Fisher & Paykel
HEALTHCARE

David Dollar

From: David Dollar
Sent: Friday, 3 February 2012 7:41
To: * Fisher & Paykel Healthcare Project Teams
CC: Benjamin Banker; Peter Partner; Byron Boss; Warren Wallstreet
Subject: Fisher & Paykel Healthcare Strategy Presentation

Greetings,

Our third client, Fisher & Paykel Healthcare Corporation is one of New Zealand's largest listed companies. It is a world leader in the design and manufacture of heated humidification equipment for use in respiratory care and in the treatment of obstructive sleep apnoea.

With a strong position in its traditional market – heated humidification equipment for invasive ventilation procedures – Fisher & Paykel Healthcare has in recent years applied its technology in new areas, expanding its product offerings to provide heated humidification for non-invasive ventilation treatment as well as some surgical procedures.

Applying its heated humidification technology to obstructive sleep apnoea treatment positioned Fisher & Paykel Healthcare as the only recent entrant in a market dominated by two incumbents. With a commitment to innovation and design, the company has managed to carve out a strong position in an industry that could grow many times over as more people become aware of the often undiagnosed sleeping disorder.

Michael Daniell, Managing Director and CEO of Fisher & Paykel Healthcare, has asked us to analyse the company and provide recommendations on the strategic level. You will have ten minutes to present to Mr Daniell and the board of directors, which will be followed by a ten minute question and answer session. You will find documents prepared by our research team **attached**.

Regards,

David Dollar,
Senior Vice President
SYG Consulting Group



Company Profile



1.0 Introduction

Fisher & Paykel Healthcare designs, manufactures and markets heated humidification devices used in respiratory care and in the treatment of obstructive sleep apnoea (OSA), along with associated accessories including breathing tubes and face masks. Fisher & Paykel Healthcare (FPH) is listed on the Australian and New Zealand stock exchanges. It is headquartered in Auckland, New Zealand and employs around 2,448 people.

The Fisher & Paykel name has long been well-known in New Zealand as a manufacturer of home appliances such as refrigerators and washing machines. In the early 1970s, Fisher & Paykel became involved in healthcare products with its development of a unique respiratory humidifier system for use in critical care. In 2001, Fisher & Paykel's home appliances and healthcare operations were divided into two separate listed companies: Fisher & Paykel Appliances and Fisher & Paykel Healthcare. Today, Fisher & Paykel Healthcare is a NZ\$1.2 billion¹ company with annual revenues of more than NZ\$500 million from sales in 120 countries.

"Our objective is to increase shareholder value by designing, developing, manufacturing, marketing and selling healthcare devices worldwide, which improve patient care and outcomes. Our strategy to achieve this goal has been to provide an expanding range of innovative medical devices for an increasing range of applications and to expand our global presence." – Gary Paykel, Chairman.

2.0 Products

FPH's products fall into two major groups: Respiratory & Acute Care (RAC) and Obstructive Sleep Apnoea (OSA). Both product groups are built on FPH's expertise in technologies that heat and humidify air for delivery to the airway.

The importance of humidity: Human lungs function best by receiving air that is 37 degrees Celsius² and 100 percent saturated with water. This is normally achieved by blood vessels in the nasal area which transfer heat and moisture to air on its way to the lungs. A constant flow of dry air from a respiratory device can overwhelm this natural system, increasing recovery time and the risk of infection, and causing discomfort for a patient.

FPH's heated humidification technology sees air pass over a chamber of warm water before being delivered to the airways, emulating the body's natural humidification process and helping to maintain optimal lung function.

Heated humidification helps patients maintain their natural defences against respiratory infection and can prevent further deterioration of an already compromised respiratory system. Heated humidification also reduces fluid depletion and helps prevent drying of the mouth, nose, throat, and upper airway, improving patient comfort and tolerance of respiratory therapy procedures. This improves the overall success rate of treatment due to the reduced need for therapy interruption, and means less clinician time is spent refitting masks. As a result, heated humidification can reduce the length of a patient's hospital stay by several days.

2.1 Respiratory and acute care (RAC)

FPH's respiratory and acute care (RAC) devices are typically used in a hospital setting to heat and humidify the air that flows to a patient's airway from a ventilator (a machine that generates airflow). FPH does not produce ventilators itself – a deliberate choice due to the low margins typically earned on the machines, and a need to maintain good relationships with ventilator makers.

Once heated and humidified, air is delivered to the patient's airway via a tracheostomy tube, facial mask, or nasal cannula, depending on the patient's needs. All these "patient interfaces" are made by FPH and must be replaced for each patient. Other consumables sold by FPH include filters, connectors, chambers, and tubing.

¹Market capitalisation as at 10 January 2012. NZ\$1.2 billion = US\$900 million

² 98.6 degrees Fahrenheit.

In the hospital setting, FPH's products have traditionally been used in intensive care for intubated patients. In recent years, however, FPH has adapted its heated humidification technology for use across a spectrum of non-invasive treatments, as well as in surgery and neonatal care.

Figure 1: The continuum of applications for FPH's technology



Invasive ventilation: Intubated patients receive heated, humidified air through an endotracheal tube inserted in their trachea (airway). The tube keeps the airway open, facilitating mechanical ventilation of the lungs.

Non-invasive ventilation: Patients receive heated, humidified air via a face mask.

Nasal high flow: High flows of heated, humidified air are delivered FPH's unique Optiflow nasal cannula (tubes inserted into the nostrils). Optiflow is more comfortable than a face mask – patients can eat, drink, talk and sleep without removing the mask. Successful nasal high flow treatment may also displace the need for invasive or non-invasive ventilation, meaning less clinician time is spent changing between multiple oxygen delivery devices and interfaces.

Face mask oxygen: Face mask oxygen treatment is required where patients need higher levels of oxygen than what nasal cannula can deliver.

Low flow oxygen: Patients receive low flow oxygen via nasal cannula or a face mask.

Humidity therapy: Chronic respiratory patients (eg, sufferers of chronic obstructive pulmonary disease or bronchiectasis) may receive high flows of air using Optiflow nasal cannula. This treatment is more comfortable than a face mask, and it improves the velocity of mucus clearance in the airway, which in turn reduces exacerbations and subsequent re-admissions for patients.

Surgery: In laparoscopic ("keyhole") surgery, carbon dioxide gas is used to create a viewing space for the surgeon to operate within by inflating a body cavity with gas. Cold, dry carbon dioxide can cause damage to abdominal membranes. Humidifying and warming the gas with FPH's HumiGard system helps avoid cellular damage, which can reduce post-operative pain and recovery time and increase the success rate for procedures.

Neonatal care: FPH's neonatal care products are used to assist new-born babies (especially premature ones) with breathing and temperature regulation. Products include infant warmers (to help maintain normal body temperature), infant resuscitators and infant-sized respiratory systems.

2.2 Obstructive sleep apnoea (OSA)

FPH's other major product group is aimed at the treatment of obstructive sleep apnoea (OSA).

OSA: During normal sleep, the airway muscles hold the airway open to enable breathing. In a person with OSA, these muscles relax too much, blocking or reducing airflow to the lungs, and causing the person to partially or fully wake up to breathe again.

Symptoms: Possible symptoms of OSA include loud snoring, restless sleep, breathing pauses or choking during sleep, morning headaches, poor concentration, memory loss, depression, sexual dysfunction and excessive daytime sleepiness

(which could be fatal if, for example, a person were to fall asleep while driving). Left untreated, OSA may lead to serious health problems such as high blood pressure, diabetes, heart attack and stroke. Often, a person with OSA is completely unaware of their condition, and it is bed-partners that observe them struggling for breath in their sleep.

CPAP treatment: The most widely accepted treatment for OSA is continuous positive airway pressure (CPAP). CPAP treatment delivers a continuous flow of air to the airway, preventing it from collapsing during sleep. CPAP is delivered using an air flow generator and humidifier connected via tubing to a mask that seals over the nose and/or mouth. While CPAP relieves the symptoms of OSA, it is not a cure, and if treatment is stopped the airway will continue to collapse.

Historically, about half of all patients abandoned CPAP treatment due to discomfort caused by the constant flow of air, and congestion or irritation caused by the dryness of the air supplied by the devices. In the mid-1990s FPH was the first to introduce humidifiers that connected to CPAP units. The dropout rate for users of these humidifiers fell from 45 percent to 11 percent. FPH then began making its own complete CPAP devices incorporating its unique humidification technology.

FPH's CPAP devices: FPH's ICON and SleepStyle CPAP units generate a flow of humidified, heated air that is delivered to a patient's airway via a mask and tubing. Patented technologies incorporated in FPH's CPAP units include the following:

- ThermoSmart – a unique heated breathing tube that maintains humidity levels without the side effect of condensation or “rain out”.
- InfoTechnologies – a range of technologies that gather, store, and report data relating to the efficacy of the CPAP treatment, and the patient's compliance with the prescribed treatment regime. Treatment data can be relayed to a healthcare provider by telephone, by use of a removable USB device, or via the internet. This information is required by some insurance companies as evidence of adequate use – a condition of payment for the treatment. InfoTechnologies can also allow healthcare providers to view and adjust the settings of CPAP devices.
- SensAwake – a unique technology that senses when the person wakes up and drops the pressure to a low level to make getting back to sleep easier.
- Ambient Tracking – balances humidity to compensate for changes in room temperature, minimising condensation.
- The ICON range also includes a digital clock, alarm and music playing capabilities via the customisable AlarmTunes.

The recently released ICON range of CPAP units has been designed to be contemporary, compact and stylish. ICON units are designed to run very quietly, and to fit unobtrusively on the bedside table. They are available in three models: Novo (fixed-pressure CPAP with compliance reporting), Premo (fixed-pressure CPAP with full compliance and efficacy reporting), and Auto (full-featured model, incorporating SensAwake technology). FPH also offers a humidification device (the HC150) that integrates with other manufacturers' non-humidified CPAP units. The HC150 retails for around US\$200.

Figure 2: The ICON range



CPAP consumables: FPH's masks, which attach to its CPAP devices via tubing, are designed to be compact, quiet, comfortable, and easy to use. They are divided into four categories based on the method of air delivery: nasal masks, nasal pillows masks, oral masks and full face masks.

FPH masks incorporate patented technology including:

- Stretchgear™ headgear for comfort.
- Maintenance-free bias diffuser – for quieter operation.
- FlexiFit™ technology – a contoured silicone seal to attach the mask to the face.
- FlexiFoam™ cushioning.

Other “consumables”, such as water chambers, tubing and filters, also require replacement periodically.

3.0 Manufacturing

FPH manufactures, assembles, and tests its complete range of products at its 51,000 square metre³ site in East Tamaki, Auckland.

In mid-2010 the company opened an 18,000 square metre⁴ facility in Tijuana, Mexico, where manufacturing costs are around 30 percent lower than in New Zealand due to lower labour costs and close proximity to FPH's North American customers.

FPH's Tijuana plant produces only consumables, such as face masks, tubes, and chambers. This is because labour costs make up a larger component of total production costs for consumables than for humidification units or airflow generators.

Currently, around 20 percent of all FPH consumables are made in the Tijuana plant. As consumables must be supplied more regularly and in greater volume than humidification units, growing manufacturing capacity for them is vital to FPH's growth. In the last year, FPH invested NZ\$5.6 million⁵ to expand capacity and the range of products manufactured in Mexico. FPH plans to shift most new manufacturing volume to the Tijuana plant over the next two years, and aims to be manufacturing approximately half of its consumables volume there within five years.

The expansion potential available in Tijuana and Auckland will enable FPH to double its manufacturing capacity over the next five years. In the longer term, the company may even consider establishing a second offshore manufacturing site, possibly in Asia.

4.0 Research and development

“New and improved products and processes, along with the development of new medical applications for our technologies, are critical drivers of our annual revenue and earnings growth.” – Michael Daniell, CEO.

FPH employs 322 engineers, scientists and physiologists principally engaged in clinical research and product and process development. FPH plans to double this number by 2018, with about 30 new graduates joining its R&D team in 2012. FPH has increased its R&D spend by an average of 18 percent per year for the last five years and it now represents 7.8 percent of total sales. In addition, FPH received a government Technology Development Grant worth NZ\$7.2 million over three years.

Recently completed developments include new respiratory and acute care (RAC) products including breathing circuits, neonatal bubble CPAP masks, infant resuscitator consumables, and a new humidification system for use in both laparoscopic and open surgery.

³550,000 square feet.

⁴200,000 square feet.

⁵US\$4.3 million.

The company has under development an extensive pipeline of new products, a number of which are scheduled for introduction in the next 12 months. Current new product development projects include a broad range of new CPAP and non-invasive ventilation masks, flow generators, humidifier systems and consumables.

R&D Investment	2009	2010	2011
Investment in R&D	NZ\$28.3m	NZ\$35.3m	NZ\$39.3m
R&D spending as % of operating revenue	6.2%	7.0%	7.8%
R&D staff	253	295	322

Patents at 31 March	2009	2010	2011
US granted	79	82	92
US applications pending (incl. PCTs*)	78	87	100
Rest of world granted	292	333	366
Rest of world applications pending (excl. PCTs*)	207	200	196

Time to market: New products developed by FPH typically take around five years to reach the market, while incremental developments of existing product lines will do so in a much shorter time. A new model of mask or consumable might reach the market within one or two years, and begin earning meaningful revenue within one year of that.

New Auckland facility: Due for completion in late 2012, a new NZ\$95 million, 31,000 square metre⁶ building will provide increased R&D, laboratory, office, manufacturing and warehouse space, and will provide the capacity to more than double FPH's New Zealand-based R&D, clinical research and marketing activities. Sixty percent of the new building's space will be occupied by R&D facilities and offices, compared to one third of the existing two buildings, which mostly house manufacturing facilities. This is due to the company's aim of moving much of the growth in its manufacturing to its Tijuana plant.

Recruitment: As FPH is the only New Zealand firm in its field, it can be hard to hire experienced personnel locally. As a result, FPH actively recruits staff for its R&D functions internationally, and has sponsored a new masters degree in medical device and technology development at The University of Auckland.

5.0 Customers and sales

"Our goal is to be recognised by our customers as a high quality, innovative and efficient supplier. We will earn their respect as the best to do business with through our understanding of their current and future needs."

– Annual Report 2011.

Respiratory and acute care (RAC) products: Over 90 percent of FPH's RAC sales are made directly to healthcare providers (mainly hospitals). In the United States, hospitals are typically members of group purchasing organisations (GPOs) – entities created to aggregate the purchasing volume of their members for various goods and services. A GPO forms contracts with suppliers through which members may buy at a group price if they choose to. This means suppliers such as FPH need a contract with the GPO in order to gain the right to sell products to member hospitals individually. Major GPOs include MedAssets, Veira Medical Group, Amerinet, and HealthTrust.

FPH also sells devices to other manufacturers of medical products (including most leading ventilator manufacturers) and their distributors, who in turn sell to hospitals and home healthcare dealers.

As one way of stimulating sales, FPH provides information and training sessions to clinicians and nurses to demonstrate the benefits of its equipment and how it works. FPH holds several hundred such seminars per year in Australia alone.

FPH's receives about US\$1,000 for each of its RAC humidification units, which last 5-10 years and will be used by around 30 hospital patients per year. Each patient also needs a fresh mask and tube and other consumables. In total, FPH receives up to US\$60 per patient from its RAC products.

⁶ 334,000 square feet.

When sold for use in oxygen therapy, FPH’s consumables are priced at ten times the price of the current alternatives (US\$50 to US\$60 compared to US\$5 to US\$6). Mr Daniell points out, however, that the cost of keeping a patient in hospital can range from US\$500 to US\$5,000 per day, and that if FPH’s products can reduce the length of a patient’s stay, they are a sound investment for the hospitals concerned.

Obstructive sleep apnoea (OSA) products: OSA sufferers, once aware of their symptoms, will typically see a GP, who will refer them to a specialist. The specialist may recommend time in a sleep lab, where the patient will be observed sleeping. Once OSA is diagnosed, the specialist will prescribe CPAP treatment. The patient will then typically make an insurance claim and obtain the required CPAP equipment from a home healthcare dealer.

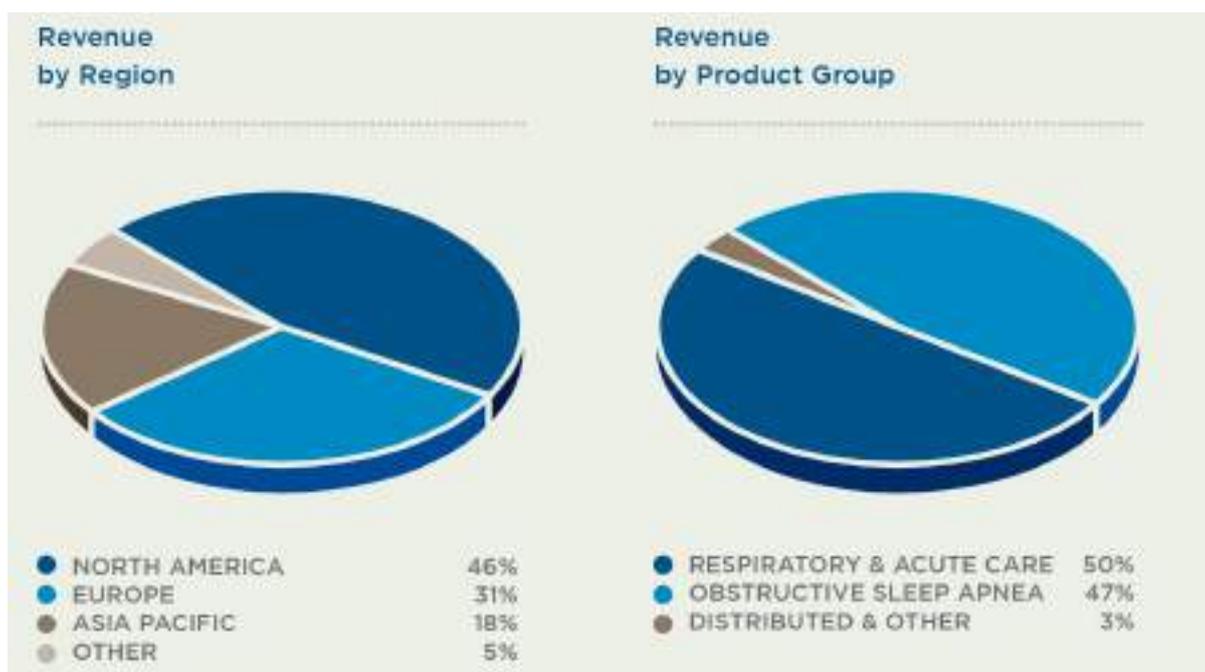
FPH sells its CPAP products to physicians (who may recommend FPH products), and sleep labs where patients may trial FPH’s equipment and perhaps make a purchase. Most sales in FPH’s large markets however are made through home healthcare equipment dealers. In the United States, national chains such as American Home Patient, APRIA, and Hometech, as well as hundreds of independent stores constitute the primary distribution channel for FPH’s CPAP equipment. In larger markets, FPH offers one-on-one seminars to CPAP patients demonstrating the benefits of its products and how to use them. In FPH’s smaller markets (as well as the United Kingdom), patients purchase CPAP equipment from hospitals.

OSA typically costs US\$1,000 to US\$2,000 to diagnose. CPAP equipment then costs about US\$1,000 initially (of which FPH gets around 40 percent), and about US\$100 to US\$200 per year for consumables like masks, tubes, water chambers, and filters. On a consumable item such as a mask, FPH receives about 50 percent of the retail price. Across both product ranges (RAC and OSA), recurring revenue from these consumable and accessory products constitutes approximately 75 percent of FPH’s total operating revenue.

For many OSA patients, the bulk of the costs involved with CPAP treatment will be borne by insurance companies. Where insurance policies require patients to contribute to the cost of their treatment (typically 20 percent), patients face a cost of US\$500 to US\$600.

International sales: FPH products are sold in over 120 countries, with the bulk of revenues coming from North America and Europe. While sales in New Zealand comprise only 1.5 percent of FPH’s revenues, New Zealand and Australia are considered important markets, as they are often the first countries to receive FPH’s new products, enabling FPH to gauge initial customer acceptance and to develop marketing material ready for worldwide release.

Figure 3: Revenue by region and product group (2011)



Direct sales: FPH has direct sales teams in more than 25 countries, selling directly to hospitals, long-term care facilities and home healthcare dealers. In North America, FPH has distribution centres in California, Kentucky and Quebec which supply to thousands of home healthcare dealers. In the United States, FPH has a partnership with CareFusion, a US hospital distributor.

FPH has sales offices in France, the United Kingdom, Germany, Sweden, Spain, Portugal, Italy, the Netherlands, Belgium, Ireland, Austria, Switzerland, Denmark, Turkey, Taiwan, Japan, Hong Kong and India.

Selling direct helps FPH ensure its product range is well supported and that new products or new applications for its products are quickly brought to the attention of health professionals and customers. When FPH introduces a new product, Mr Daniell notes, it tends to change medical practice in some way. Medical practitioners can be resistant to change and must be soundly convinced before they will change their practices. A local presence also enables FPH to identify local needs and opportunities, build relationships that support growth, and deal with the complexities of multiple languages, differing regulatory requirements and market preferences.

Through distributors: In markets where FPH does not have its own representatives, it sells to over 90 distributors worldwide who in turn sell to hospitals, home healthcare dealers and other manufacturers of medical products. FPH's distributors throughout Central and Eastern Europe, Asia and the Middle East are supported by regional sales managers and product specialists based in New Zealand, Korea, Egypt and Saudi Arabia. As these markets grow, FPH aims to sell directly in them.

6.0 Challenges and opportunities

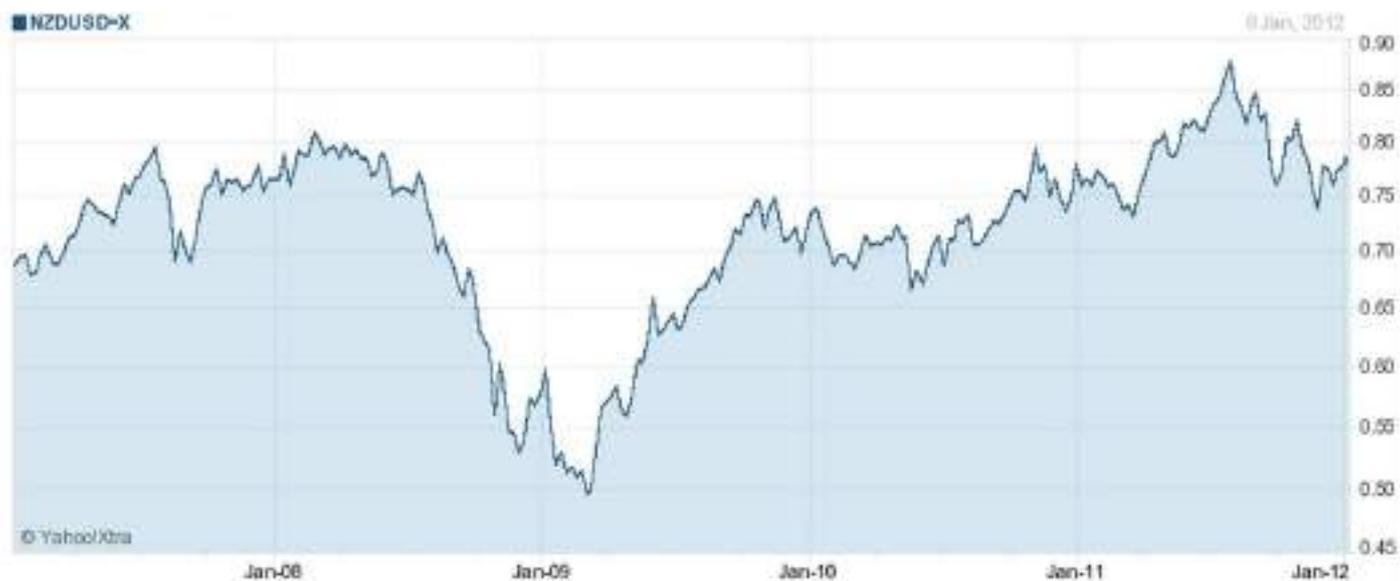
Exchange rate volatility: While about 50 percent of FPH's costs are in New Zealand dollars (NZD), 99 percent of its revenues are not. Approximately 54 percent of FPH's operating revenue is generated in US dollars (USD), 23 percent in Euros, six percent in Australian dollars, four percent in pounds sterling, four percent in Japanese yen, one percent in New Zealand dollars and eight percent in other currencies.

The current strength of the New Zealand dollar against the US dollar poses a challenge for New Zealand-based exporters including FPH. FPH's considerable exposure to the US dollar is illustrated by the fact that its operating revenue growth of 18 percent in USD (to US\$205.7 million), translated to a three percent growth in NZD (to NZ\$252 million).

To address its exposure to the NZD-USD exchange rate, FPH is actively seeking new markets outside the United States, and aims to increase sales in Turkey, Canada, Hong Kong, Japan and Taiwan, where sales are moving from US dollars to local currencies. The establishment of the Tijuana plant is also aimed at shifting costs from NZD to Mexican pesos (a currency more closely aligned with the USD).

For the remainder of the current financial year, FPH has around 90 percent of its exposure to US dollars hedged at US\$0.7; and 86 percent of its exposure to Euros covered at €0.48. It has around NZ\$520 million in foreign exchange contracts in place over the next five years as protection against negative currency movements.

Figure 4: NZD-USD exchange rate, Jan 2007 to Jan 2012



Four point growth strategy: “Growth at F&P Healthcare is underpinned by a clear four point strategy”, Mr Daniell says. Point one is to develop the technology and make it better. Point two is to look for opportunities to do more for each patient. FPH started with the humidifier – a device that heats water and creates humidity. It then offered a single patient version of the chamber that heats the water, then began to offer masks, tubing, and filters – more of what each patient needs. Point three is to develop the technology for use by more patients. FPH began with technology that provided heated humidity to intubated patients. Since then it has adapted this technology for use in non-invasive ventilation, oxygen therapy, obstructive sleep apnoea and other applications. Point four is to grow geographically and to get more staff based in new markets.



Industry Information



7.0 Industry information

Respiratory and acute care: About seven million patients per year undergo invasive ventilation, and FPH equipment is used to treat 70-80 percent of all intubated patients worldwide. Each of these patients generates about US\$60 for FPH, mainly in sales of consumables. Of the remaining 20-30 percent of intubated patients, most are treated with heat and moisture exchangers – a simpler technology that retains heat and moisture from a patient’s own breath.

While the remaining 30 percent of intubated patients not using FPH’s equipment constitutes a growth opportunity for the firm, FPH’s focus is primarily on growing the use of its technology towards the right hand side of its spectrum, where an estimated 30 million more patients per year receive varying types of non-invasive, oral or nasal ventilation. Currently, only five percent of those patients are receiving humidified gases. In addition, FPH’s move to offer heated humidification for abdominal inflation during operations on internal organs is aimed at a market of an estimated 15 million operations per year. In the last year, revenue from “new applications” of FPH’s RAC devices grew by 32 percent in US dollar terms, and accounted for almost a third of RAC consumable sales during the year.

The market for respiratory ventilation in terms of numbers of patients treated is growing at an estimated 5-7 percent per year. Factors contributing towards this trend include the ageing of the developed world’s population, the tendency for mothers to give birth later in life (older mothers are more likely to give birth prematurely), and major investment in healthcare infrastructure in the developing world, particularly China and India – the firm’s two fastest growing markets.

Obstructive sleep apnoea: FPH estimates that there are 60 million people in the developed world with OSA, fewer than 15 million of whom have been diagnosed and treated so far. With each patient worth US\$200-\$250 per year (at FPH’s pricing), FPH estimates that the worldwide market for OSA treatment devices and consumables is worth more than US\$2.2 billion annually.

Diagnosed cases of OSA are currently growing at 5-10 percent per year – a rate that has decreased (from 10-15 percent) in recent years as economic conditions in FPH’s main markets have prompted patients to temporarily defer OSA treatment and the costs associated with it. Nevertheless, the increase in awareness and diagnosis of OSA and the fact that it is more prevalent among the elderly and obese makes it one of the fastest growing medical conditions in the developed world.

FPH currently has about a five percent global market share in CPAP flow-generators, a market dominated by Philips Respironics and ResMed, with about 40 percent each. Apart from FPH, there have been no noticeable new entrants in the last 15 years.

FPH has a ten percent share in CPAP masks. FPH’s masks are compatible with other manufacturers’ flow generators as well as FPH’s own range. Masks need replacing every 6-12 months and generate much higher margins for FPH than flow-generators.

7.1 Competitors

Respiratory and acute care: While FPH’s market share in RAC active humidification is very high, it is not the only manufacturer of the technology. For example, Hudson RCI, a division of global medical device manufacturer Teleflex Medical, offers a range of heated humidifiers for hospital use. Other firms, such as OSA competitor ResMed, have demonstrated interest in entering the market, particularly in non-invasive applications of the technology. Mr. Daniell is confident of FPH’s ability to maintain its strong position in RAC due to its broad product range, innovative culture and substantial investment in R&D.

The main alternative to active heated humidification products is passive humidification through the use of heat and moisture exchangers – units that capture and retain the heat and moisture from a patient’s expired breath and release it into the next inspired breath. Disposable and with no moving parts, heat and moisture exchangers are much cheaper than heated humidification units, but are said to deliver less humidity and can be difficult to breathe through.

Heat and moisture exchangers are produced by some of the world’s largest medical equipment manufacturers including GE Healthcare (a division of General Electric), Siemens Healthcare (a division of Siemens AG), and Smiths Medical (part of global engineering firm Smiths Group plc). As well as producing heat and moisture exchangers and mechanical ventilators, these firms also produce ventilation consumables such as tubes and masks.

Obstructive sleep apnoea: FPH’s main competitors in OSA products are ResMed and Philips Respironics. ResMed is headquartered in Poway, California and sells products in over 70 countries through direct offices and a network of distributors. It employs 3,450 people and recorded revenues of US\$1.2 billion in the fiscal year ended June 2011, an increase of 13.8 percent over 2010. The company’s operating profit was US\$266.9 million in fiscal 2011, an increase of 11 percent over 2010.

ResMed’s recently released S9 series of CPAP flow generators is designed to be stylish, very quiet, and easy to use. S9 units monitor usage and store compliance data for retrieval from a removable SD card. ResMed’s H5i heated humidifier integrates with the S9 range, as do the company’s SlimLine tubes, ClimateLine heated tubes, and its extensive range of masks. S9 units can also be fitted with customisable “skins”. ResMed also makes ventilators for use in hospitals and acute care facilities, and recently launched the Stellar 100 range with an eye to the fast-growing non-invasive ventilation market.

Figure 5: ResMed S9



ResMed aims to raise public awareness of OSA by highlighting the relationship between OSA and cardiac disease, diabetes, hypertension, and obesity. To achieve this, it has established ResMed Foundations in Australia and the United States and funds medical education for doctors on the dangers of undiagnosed OSA. ResMed invests 6-7 percent of its revenues in R&D, and as of December 2010 it had over 3,000 patents granted or pending worldwide.

Respironics, now owned by Philips Electronics, was founded in 1976 producing anaesthesia masks and tracheostomy products. Its first CPAP machine for the treatment of OSA was introduced in 1985. The company has made several acquisitions in the past 20 years, including a ventilator maker (LIFECARE International) and an OSA competitor (Healthdyne Technologies). Respironics is based in Pittsburgh, Pennsylvania and employs 4,900 people. Its most recent published revenues were US\$1.05 billion.

Respironics' System One range of CPAP units integrate with its humidifier units, masks and tubes. The units monitor and record usage data for retrieval from an SD card, and pressure can be adjusted automatically or remotely based on this recorded data. System One units also adjust automatically in response to changes in room temperature and humidity.

Respironics' products are part of Philips' wide range of medical devices which include equipment for invasive and non-invasive ventilation in a hospital setting.

7.2 Regulation

As a manufacturer of medical devices, FPH must comply with a wide range of country-specific regulations. Products destined for the United States must comply with the US Food and Drug Administration Quality System Regulation and require market clearance prior to commercialisation. So far, FPH's devices have been recognised as Class II medical devices, meaning they are easier to get clearance for than, for example, drugs or implants. The clearance process in the United States typically takes three to six months.

FPH's Auckland and Tijuana facilities are audited annually to maintain the certification that allows FPH to certify its own products with the CE mark – necessary for entry into European Union markets and to meet Canadian, Japanese, Australian and other regulatory requirements.



Financial Information



Five Year Financial Summary (NZ\$)

FOR THE YEARS ENDED 31 MARCH

	2007 NZ\$000	2008 NZ\$000	2009 NZ\$000	2010 NZ\$000	2011 NZ\$000
(EXCEPT AS OTHERWISE STATED)					
FINANCIAL PERFORMANCE					
Sales revenue	342,978	345,966	485,516	474,755	467,680
Foreign exchange gain (loss) on hedged sales	4,179	11,927	(26,799)	28,567	38,394
Total operating revenue	347,157	357,893	458,717	503,322	506,074
Cost of sales	(151,298)	(177,811)	(212,087)	(231,939)	(228,372)
Gross profit	195,859	180,082	246,630	271,383	277,702
Gross margin	56.4%	50.3%	53.8%	53.9%	54.9%
Other income	-	-	3,000	4,269	1,200
Selling, general and administrative expenses	(95,909)	(97,859)	(118,929)	(137,541)	(141,882)
Research and development expenses	(20,668)	(24,091)	(28,310)	(35,272)	(39,277)
Operating profit before financing costs	79,282	58,132	102,391	102,839	97,743
Operating margin	22.8%	16.2%	22.3%	20.4%	19.3%
Net financing income (expense)	337	(3,822)	(17,353)	3,976	(4,929)
Profit before tax	79,619	54,310	85,038	106,815	92,814
Tax expense	(29,115)	(19,034)	(22,805)	(35,184)	(28,868)
Profit after tax*	50,504	35,276	62,233	71,631	63,946
Revenue by region:					
North America	169,689	165,685	208,861	234,035	233,706
Europe	107,938	115,999	151,907	161,723	159,438
Asia Pacific	53,412	58,287	71,787	81,404	90,115
Other	16,118	17,922	26,162	26,160	22,815
Total	347,157	357,893	458,717	503,322	506,074
Revenue by product group:					
Respiratory & acute care	160,235	163,550	226,866	242,419	253,303
Obstructive sleep apnea	161,059	165,378	202,604	237,012	236,654
Core products subtotal	321,294	328,928	429,470	479,431	489,957
Distributed and other	25,863	28,965	29,247	23,891	16,117
Total	347,157	357,893	458,717	503,322	506,074
FINANCIAL POSITION					
Tangible assets	305,283	313,667	371,520	387,288	422,064
Intangible assets	21,492	18,000	42,217	87,771	95,544
Total assets	326,775	331,667	413,737	475,059	517,608
Liabilities	(90,228)	(136,003)	(209,436)	(181,895)	(204,317)
Shareholders' equity	236,547	195,664	204,301	293,164	313,291
Net tangible asset backing (cents per share)	42.1	34.9	31.8	40.1	41.8
Pre-tax return on average total assets percentage	26.8%	16.5%	22.8%	24.0%	18.7%
Pre-tax return on average equity percentage	36.1%	25.1%	42.5%	42.9%	30.6%
CASH FLOWS					
Net cash flow from operating activities	56,346	44,351	62,065	137,449	71,053
Net cash flow (used in) investing activities	(16,745)	(13,457)	(22,368)	(48,189)	(43,237)
Net cash flow (used in) financing activities	(47,997)	(35,848)	(37,121)	(90,275)	(37,485)
SHARES OUTSTANDING					
Weighted basic average shares outstanding	510,849,528	509,402,778	509,492,237	511,251,159	517,154,550
Weighted diluted average shares outstanding	524,759,124	524,856,394	527,363,056	529,793,292	536,265,092
Basic shares outstanding at end of the year	511,248,727	509,452,817	509,530,912	512,304,851	520,453,173

* Prior to one-off non-cash deferred tax charges of NZ\$11.5m (2011)

Five Year Financial Summary (NZ\$)

FOR THE YEARS ENDED 31 MARCH

	2007 NZ\$000	2008 NZ\$000	2009 NZ\$000	2010 NZ\$000	2011 NZ\$000
(EXCEPT AS OTHERWISE STATED)					
DIVIDENDS AND EARNINGS PER SHARE (CENTS PER SHARE)					
Dividends paid:					
Final (i)	7.0	7.0	7.0	7.0	7.0
Interim	5.4	5.4	5.4	5.4	5.4
Total ordinary dividends	12.4	12.4	12.4	12.4	12.4
Basic earnings per share	9.9	6.9	12.2	14.0	10.2
Diluted earnings per share	9.6	6.7	11.8	13.5	9.8
(i) Final dividend relates to the prior financial year.					
PATENTS					
Number of United States patents	76	81	79	82	92
Number of United States patent applications (includes PCTs*)	71	66	78	87	100
Number of non-United States patents	208	246	292	333	366
Number of non-United States patent applications (excludes PCTs*)	218	250	207	200	196
RESEARCH AND DEVELOPMENT					
Research and development expenditure	20,668	24,091	28,310	35,272	39,277
Percentage of operating revenue	6.0%	6.7%	6.2%	7.0%	7.8%
CAPITAL EXPENDITURE					
Operational	17,079	11,025	19,581	43,006	25,290
Land and buildings	11,627	641	782	2,743	15,491
Total	28,706	11,666	20,363	45,749	40,781
Capital expenditure : depreciation ratio	2.2	0.9	1.3	2.9	2.0
NUMBER OF EMPLOYEES					
By function:					
Research and development	225	240	253	295	322
Manufacturing and operations	929	1,074	1,240	1,371	1,426
Sales, marketing and distribution	398	454	493	562	595
Management and administration	86	91	98	113	105
Total	1,638	1,859	2,084	2,341	2,448
By region:					
New Zealand	1,304	1,471	1,666	1,818	1,666
North America	131	142	151	208	441
Europe	133	157	166	182	197
Rest of World	70	89	101	133	144
Total	1,638	1,859	2,084	2,341	2,448
AVERAGE DAILY SPOT EXCHANGE RATES (NZ\$1 =)					
USD	0.6568	0.7594	0.6524	0.6785	0.7330
AUD	0.8583	0.8750	0.8216	0.7970	0.7774
GBP	0.3468	0.3782	0.3773	0.4248	0.4708
EUR	0.5117	0.5367	0.4552	0.4796	0.5545
JPY	76.8310	86.7791	66.2058	62.8416	62.6944
INR	29.7180	30.5781	29.5846	32.1660	33.3994
CAD	0.7480	0.7854	0.7220	0.7377	0.7454
SEK	4.7169	4.9838	4.5255	4.9675	5.1453
CNY	5.1923	5.6626	4.4738	4.6374	4.9177
MXN	7.2381	8.2615	7.6642	8.8890	9.1310

* PCTs (Patent Cooperation Treaty) are unified patent applications across a number of jurisdictions

Income Statements

FOR THE YEAR ENDED 31 MARCH 2011

PARENT			CONSOLIDATED	
2010 NZ\$000	2011 NZ\$000		2010 NZ\$000	2011 NZ\$000
57,773	59,769	Operating revenue	503,322	506,074
		Cost of sales	(231,939)	(228,372)
57,773	59,769	Gross profit	271,383	277,702
–	–	Other income	4,269	1,200
(1,187)	(1,195)	Selling, general and administrative expenses	(137,541)	(141,882)
		Research and development expenses	(35,272)	(39,277)
56,586	58,574	Operating profit before financing costs	102,839	97,743
		Financing income	657	577
		Financing expense	(6,444)	(6,026)
		Exchange gain on foreign currency borrowings	9,763	520
–	–	Net financing income (expense)	3,976	(4,929)
56,586	58,574	Profit before tax	106,815	92,814
(135)	(588)	Tax expense excluding the effect of legislative changes in May 2010	(35,184)	(28,868)
56,451	57,986	Profit after tax excluding legislative changes	71,631	63,946
–	(7)	Tax expense relating to legislative changes in May 2010	–	(11,480)
56,451	57,979	Profit after tax	71,631	52,466
(135)	(595)	Total tax expense	(35,184)	(40,348)
		Basic earnings per share	14.0 cps	10.2 cps
		Diluted earnings per share	13.5 cps	9.8 cps
		Weighted average basic ordinary shares	511,251,159	517,154,550
		Weighted average diluted ordinary shares	529,793,292	536,265,092

The accompanying Accounting Policies and Notes form an integral part of the Financial Statements.

Balance Sheets

AS AT 31 MARCH 2011

PARENT			CONSOLIDATED		
2010 NZ\$000	2011 NZ\$000		NOTES	2010 NZ\$000	2011 NZ\$000
		ASSETS			
		Current assets			
		Cash and cash equivalents	8	6,891	6,110
44	41	Trade and other receivables	9	71,437	79,622
		Inventories	10	71,763	80,101
		Derivative financial instruments	11	27,672	20,225
4,724	4,332	Tax receivable	12	2,302	429
40,999	60,645	Intergroup advances	25		
45,767	65,018	Total current assets		180,065	186,487
		Non-current assets			
		Property, plant and equipment	13	233,278	254,265
		Intangible assets	14	4,891	5,390
8,768	8,768	Investments in subsidiaries	15		
		Other receivables	9	1,617	1,537
		Derivative financial instruments	11	44,197	61,095
154	100	Deferred tax asset	16	11,011	8,834
54,689	73,886	Total assets		475,059	517,608
		LIABILITIES			
		Current liabilities			
		Interest-bearing liabilities	17	24,502	17,110
279	190	Trade and other payables	18	58,546	57,964
		Provisions	19	4,183	3,370
		Tax payable	12	9,432	3,716
		Derivative financial instruments	11	1,149	2,018
279	190	Total current liabilities		97,812	84,178
		Non-current liabilities			
		Interest-bearing liabilities	17	59,610	81,937
		Provisions	19	1,694	1,971
513	361	Other payables	18	5,201	5,449
		Derivative financial instruments	11	2,361	3,580
		Deferred tax liability	16	15,217	27,202
792	551	Total liabilities		181,895	204,317

The accompanying Accounting Policies and Notes form an integral part of the Financial Statements.

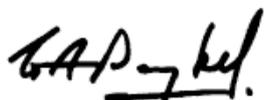
Balance Sheets (continued)

AS AT 31 MARCH 2011

PARENT			CONSOLIDATED	
2010 NZ\$000	2011 NZ\$000		2010 NZ\$000	2011 NZ\$000
			NOTES	
		EQUITY		
15,222	40,783	Share capital	20	15,222
(2,222)	(2,064)	Treasury shares	20, 21	(2,222)
37,730	31,902	Retained earnings	21	196,061
		Asset revaluation reserve	21	10,850
		Cash flow hedge reserve - unrealised	21	47,817
		Cash flow hedge reserve - realised	21	22,269
258	153	Employee share entitlement reserve	21	258
2,909	2,561	Employee share option reserve	21	2,909
53,897	73,335	Total equity		293,164
54,689	73,886	Total liabilities and equity		517,608

The accompanying Accounting Policies and Notes form an integral part of the Financial Statements.

On behalf of the Board
25 May 2011



Gary Paykel
Chairman



Michael Daniell
Managing Director and Chief Executive Officer

Statements of Cash Flows

FOR THE YEAR ENDED 31 MARCH 2011

PARENT			CONSOLIDATED		
2010 NZ\$000	2011 NZ\$000		NOTES	2010 NZ\$000	2011 NZ\$000
		CASH FLOWS FROM OPERATING ACTIVITIES			
		Receipts from customers		514,649	501,167
		Receipts from derivative financial instruments monetised		31,813	–
		Receipt from distribution agency termination agreement compensation		3,221	–
56,605	56,538	Dividends received			
1,168	3,231	Interest received		571	478
(1,155)	(1,187)	Payments to suppliers and employees		(383,144)	(398,870)
		Tax paid		(23,332)	(25,620)
		Interest paid		(6,329)	(6,102)
56,618	58,582	Net cash flows from operations	26	137,449	71,053
		CASH FLOWS (USED IN) INVESTING ACTIVITIES			
		Sales of property, plant and equipment		67	66
		Purchases of property, plant and equipment		(45,749)	(40,781)
		Purchases of intangible assets		(2,507)	(2,522)
		Net cash flows (used in) investing activities		(48,189)	(43,237)
		CASH FLOWS (USED IN) FINANCING ACTIVITIES			
		Employee share purchase schemes		498	588
5,895	23,088	Issue of share capital under dividend reinvestment plan		5,895	23,088
1,090	253	Issue of share capital		1,090	253
		New borrowings		17,582	35,060
		Repayment of borrowings		(47,246)	(27,758)
4,491	(13,207)	Intercompany borrowings			
(63,296)	(63,807)	Dividends paid		(63,296)	(63,807)
(4,798)	(4,909)	Supplementary dividends paid to overseas shareholders		(4,798)	(4,909)
(56,618)	(58,582)	Net cash flows (used in) financing activities		(90,275)	(37,485)
–	–	Net (decrease) in cash		(1,015)	(9,669)
		Opening cash		(202)	(1,123)
		Effect of foreign exchange rates		94	(208)
		Closing cash		(1,123)	(11,000)
		RECONCILIATION OF CLOSING CASH			
		Cash and cash equivalents	8	6,891	6,110
		Bank overdrafts	17	(8,014)	(17,110)
		Closing cash		(1,123)	(11,000)

The accompanying Accounting Policies and Notes form an integral part of the Financial Statements.

32. SEGMENT INFORMATION (CONTINUED)

Operating Segments 31 MARCH 2010	NEW ZEALAND NZ\$000	NORTH AMERICA NZ\$000	EUROPE NZ\$000	ASIA- PACIFIC NZ\$000	ELIMINATIONS NZ\$000	TOTAL NZ\$000
Sales revenue – external	73,076	216,162	140,236	45,281	–	474,755
Sales revenue – internal	288,539	–	438	14	(288,991)	–
Foreign exchange gain on hedged sales	28,567	–	–	–	–	28,567
Total operating revenue	390,182	216,162	140,674	45,295	(288,991)	503,322
Other income	1,048	–	–	3,221	–	4,269
Depreciation and amortisation	15,996	316	516	622	–	17,450
Reportable segment operating profit before financing costs	72,668	4,636	5,398	5,732	14,405	102,839
Financing income	2,518	–	3	15	(1,879)	657
Financing expense	(5,809)	(1,650)	(647)	(217)	1,879	(6,444)
Exchange gain on foreign currency borrowings	9,763	–	–	–	–	9,763
Reportable segment assets	440,333	67,818	52,553	19,836	(105,481)	475,059
Reportable segment capital expenditure	46,753	562	693	248	–	48,256
Operating Segments 31 MARCH 2011	NEW ZEALAND NZ\$000	NORTH AMERICA NZ\$000	EUROPE NZ\$000	ASIA- PACIFIC NZ\$000	ELIMINATIONS NZ\$000	TOTAL NZ\$000
Sales revenue – external	56,017	211,332	136,298	64,033	–	467,680
Sales revenue – internal	281,495	–	–	–	(281,495)	–
Foreign exchange gain on hedged sales	38,394	–	–	–	–	38,394
Total operating revenue	375,906	211,332	136,298	64,033	(281,495)	506,074
Other income	1,200	–	–	–	–	1,200
Depreciation and amortisation	20,784	344	391	554	–	22,073
Reportable segment operating profit before financing costs	80,774	4,619	4,819	2,666	4,865	97,743
Financing income	1,909	37	1	2	(1,372)	577
Financing expense	(5,264)	(1,057)	(763)	(314)	1,372	(6,026)
Exchange gain on foreign currency borrowings	520	–	–	–	–	520
Reportable segment assets	468,752	61,851	55,197	29,537	(97,729)	517,608
Reportable segment capital expenditure	42,071	490	399	343	–	43,303

Product Segments

The Group's products and systems are for use in respiratory care, acute care and the treatment of obstructive sleep apnea and are sold in over 120 countries worldwide. Revenues are managed on a regional basis, but a split by product group is set out below. Assets are not split by product group. Segment revenue is based on product SKUs.



Appendices



Medical device exports, US\$million

Country/region	2004	2005	2006	2007	2008
United States	21,034	24,081	26,914	29,633	34,102
Canada	1,060	1,246	1,436	1,409	1,607
Germany	12,946	14,712	16,861	19,829	22,561
Netherlands	7,396	8,379	9,352	10,514	12,237
Belgium	5,239	5,980	6,533	8,260	11,132
France	5,416	6,248	6,791	7,570	8,973
Switzerland	4,772	5,621	6,415	6,929	8,478
Ireland	7,148	7,641	5,450	5,941	7,587
United Kingdom	4,750	5,482	6,187	6,537	6,228
Italy	2,263	2,486	2,842	3,263	3,500
Denmark	1,711	1,802	2,161	2,498	2,585
Sweden	1,669	1,581	1,831	2,078	2,266
Rest of Europe	4,417	4,938	5,645	6,764	7,989
Europe total	57,726	64,868	70,069	80,181	93,536
China	2,282	3,053	3,972	5,153	6,632
Japan	4,678	5,081	5,352	5,834	6,123
Singapore	1,627	1,719	2,205	2,409	2,500
Hong Kong	1,184	1,223	1,070	1,340	1,657
Australia	647	823	982	1,274	1,456
South Korea	616	764	941	1,053	1,276
Rest of Asia	1,942	2,028	2,334	2,704	3,159
Asia total	12,976	14,691	16,857	19,768	22,803
Israel	1,096	996	1,174	1,350	1,615
Middle East total	1,153	1,087	1,264	1,442	1,738
Mexico	3,020	3,759	4,014	4,581	5,079
Latin America total	3,806	4,720	5,115	5,848	6,593
Caribbean	27	85	683	532	624
South Africa	72	86	97	99	116
Africa total	156	184	219	231	323
World	97,939	110,961	122,557	139,045	161,325

Medical device imports, US\$million

Country/region	2004	2005	2006	2007	2008
United States	20,475	22,311	24,033	26,683	29,627
Canada	2,638	3,115	3,418	3,828	4,268
Germany	7,486	8,509	10,016	11,328	12,882
Netherlands	5,869	7,631	8,562	8,542	10,255
France	6,114	6,906	7,581	8,360	9,822
United Kingdom	5,497	6,410	6,689	7,205	7,899
Belgium	3,240	3,604	3,970	5,118	6,555
Italy	3,988	4,553	4,922	5,270	5,809
Russia	1,084	1,208	2,021	3,261	4,467
Spain	2,363	2,623	3,159	3,763	4,137
Switzerland	1,893	2,104	2,360	2,723	3,365
Rest of Europe	11,330	12,658	14,348	17,123	19,820
Europe total	48,865	56,207	63,628	72,694	85,010
Japan	6,438	7,038	7,444	7,538	8,586
China	2,738	3,175	3,202	3,751	4,566
Australia	1,790	2,085	2,339	3,474	3,067
South Korea	1,358	1,583	1,984	2,279	2,335
Singapore	1,052	1,362	1,574	1,724	1,742
Hong Kong	1,163	1,271	1,190	1,318	1,580
India	627	862	1,037	1,260	1,507
Taiwan	733	821	905	939	999
Rest of Asia	1,642	2,047	2,355	2,690	3,228
Asia total	17,541	20,243	22,030	24,973	27,611
Mexico	1,500	1,836	2,083	2,095	2,333
Brazil	597	771	990	1,328	1,662
Venezuela	143	259	227	380	826
Rest of Latin America	966	1,216	1,470	1,736	2,031
Latin America total	3,206	4,081	4,770	5,539	6,852
Saudi Arabia	465	558	605	667	956
Israel	513	550	616	628	681
Iran	233	283	81	386	515
Rest of Middle East	615	781	902	1,018	1,302
Middle East total	1,826	2,173	2,205	2,699	3,454
South Africa	543	682	814	855	888
Africa total	1,528	1,778	2,160	2,630	2,757
Caribbean	253	340	474	546	413
World	96,331	110,248	122,717	139,592	159,993

Medical devices includes a wide range of products used for diagnosis or therapy in patients, including syringes, thermometers, ventilators, masks, humidifiers, prosthetic limbs, ultrasound scans and X-ray machines, among others.

Medical device imports - ventilators, US\$million

Country/region	2004	2005	2006	2007	2008
United States	1,171	1,327	1,536	1,658	1,843
Canada	188	238	276	319	341
Germany	199	272	317	374	457
France	196	243	285	374	418
United Kingdom	303	333	357	377	408
Russia	109	90	161	253	364
Belgium	149	167	195	294	331
Italy	126	133	149	171	196
Spain	79	102	137	167	168
Netherlands	130	141	160	184	158
Poland	26	28	43	62	105
Turkey	39	59	80	94	100
Switzerland	65	75	80	95	100
Ireland	51	58	90	111	95
Rest of Europe	332	376	468	632	703
Europe total	1,805	2,076	2,523	3,189	3,602
Japan	385	416	410	459	488
Hong Kong	177	192	183	180	211
China	93	99	101	112	140
Australia	75	85	99	118	135
South Korea	39	68	64	64	63
Singapore	43	67	74	61	60
Taiwan	51	67	63	53	59
Malaysia	40	51	63	56	52
Rest of Asia	77	100	129	147	177
Asia total	979	1,146	1,186	1,251	1,385
Mexico	55	63	76	82	85
Brazil	9	15	24	32	50
Venezuela	5	9	10	19	44
Rest of Latin America	38	47	61	86	106
Latin America total	107	134	170	220	285
Saudi Arabia	18	17	27	31	36
Iran	16	19	2	40	33
Israel	15	18	20	28	27
Rest of Middle East	28	35	35	36	52
Middle East total	78	89	84	135	148
South Africa	19	25	32	41	34
Africa total	51	63	79	105	108
Caribbean total	7	35	25	14	9
World	4,386	5,108	5,880	6,891	7,720

Medical device imports - masks, US\$million

Country/region	2004	2005	2006	2007	2008
United States	97	91	109	100	119
Canada	52	58	70	78	80
Germany	56	63	94	111	123
France	52	50	64	73	76
United Kingdom	57	59	67	64	69
Italy	22	24	23	27	28
Netherlands	16	16	18	28	25
Sweden	10	12	15	17	20
Spain	32	29	21	23	19
Denmark	9	9	10	12	18
Belgium	17	18	20	28	18
Norway	10	13	13	15	17
Switzerland	9	10	11	12	13
Rest of Europe	61	70	86	98	119
Europe total	352	373	441	507	543
Australia	19	20	30	28	34
China	14	19	19	21	24
Singapore	14	17	24	27	24
Japan	12	18	20	17	19
South Korea	10	10	13	17	14
Malaysia	15	7	7	13	13
Taiwan	7	7	7	11	12
Hong Kong	4	4	8	8	11
India	1	2	6	4	8
Rest of Asia	16	19	25	27	29
Asia total	112	124	159	173	189
Saudi Arabia	6	9	8	6	16
United Arab Emirates	10	8	11	15	16
Rest of Middle East	10	16	14	18	18
Middle East total	27	33	32	40	51
Mexico	16	15	20	15	21
Brazil	6	7	8	10	13
Chile	4	4	6	8	9
Rest of Latin America	11	14	15	18	25
Latin America total	37	40	48	52	67
South Africa	9	12	14	17	19
Africa total	26	31	32	49	40
World	706	752	897	1,005	1,094

Medical device exports - ventilators, US\$million

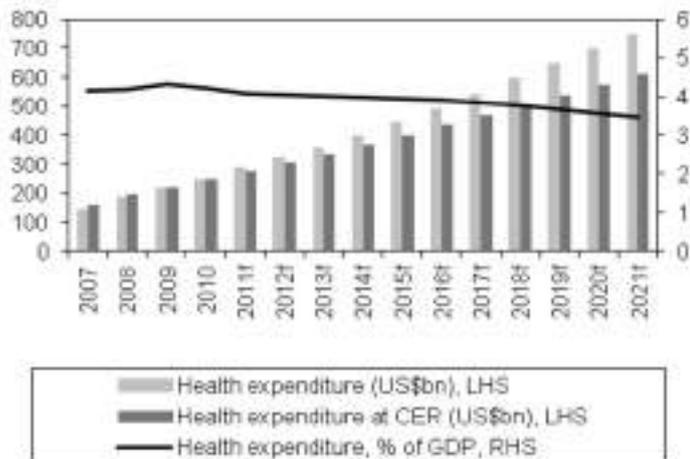
Country/region	2004	2005	2006	2007	2008
United States	1,171	1,327	1,536	1,658	1,843
Canada	245	288	312	342	365
Germany	364	434	494	658	741
France	153	188	220	283	280
Belgium	87	103	123	211	258
United Kingdom	233	232	345	258	230
Ireland	184	169	212	185	227
Netherlands	132	127	164	234	220
Italy	169	180	193	193	215
Switzerland	73	86	92	109	130
Sweden	90	84	86	111	111
Rest of Europe	210	206	285	331	365
Europe total	1,695	1,809	2,214	2,574	2,776
China	441	680	873	1,123	1,279
Australia	169	308	408	496	496
Hong Kong	255	274	252	273	312
New Zealand	10	24	31	75	147
Japan	139	147	125	110	95
Taiwan	63	63	64	79	79
South Korea	38	60	95	65	63
Rest of Asia	40	64	75	70	79
Asia total	1,153	1,619	1,923	2,291	2,551
Mexico	89	195	161	273	267
Latin America total	103	214	190	308	311
Israel	40	24	26	30	46
World	4,408	5,286	6,210	7,205	7,893

Medical device exports - masks, US\$million

Country/region	2004	2005	2006	2007	2008
United States	97	91	109	100	119
Canada	68	70	79	84	86
United Kingdom	142	148	145	182	192
Germany	103	125	130	160	178
France	88	109	116	107	77
Sweden	26	23	27	30	35
Netherlands	9	10	7	13	32
Finland	16	15	16	19	24
Italy	20	20	18	20	22
Rest of Europe	65	57	61	71	75
Europe total	468	506	520	602	635
Australia	8	4	7	40	122
China	6	10	15	41	84
Taiwan	17	21	28	30	28
New Zealand	2	10	16	17	24
Singapore	6	6	19	23	22
Rest of Asia	15	15	18	22	26
Asia total	54	67	103	173	305
Mexico	17	21	72	39	27
World	722.14	767.84	900.76	1023.35	1193.69

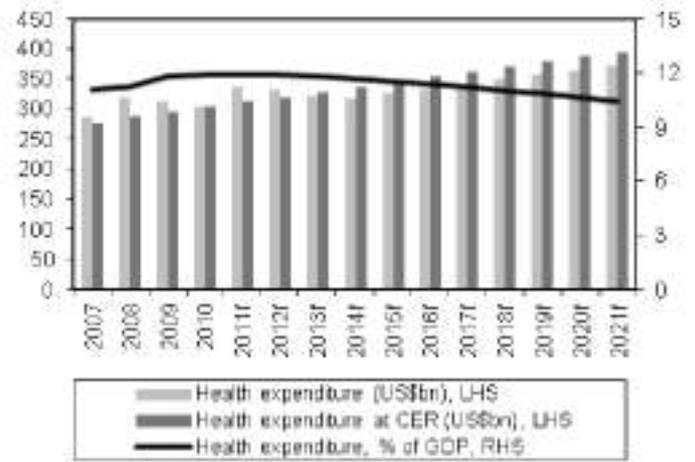
Medical device sales, US\$billion																		
Country/region	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
United States	88.3	93.0	100.1	107.6	115.7	123.9	127.6	133.0	138.3	143.7	149.1	154.5	159.8	165.2	170.6	176.0	181.4	186.6
Canada	3.7	4.3	4.7	5.3	5.9	5.8	6.3	7.3	7.4	7.2	7.3	7.5	8.1	8.7	9.4	10.3	11.2	12.2
Germany	10.4	11.8	13.9	15.7	17.9	17.6	17.2	19.1	19.0	18.4	18.2	18.6	19.1	19.6	20.1	20.5	21.0	21.4
Netherlands	8.2	10.6	11.9	11.9	14.2	14.3	14.2	15.9	15.8	15.4	15.3	15.8	16.3	16.8	17.4	17.9	18.4	18.9
France	8.5	9.6	10.5	11.6	13.6	13.8	13.4	14.9	14.7	14.2	14.0	14.3	14.7	15.0	15.4	15.7	16.0	16.4
Belgium	4.5	5.0	5.5	7.1	9.1	9.8	10.2	11.7	11.6	11.2	11.1	11.4	11.7	11.9	12.2	12.5	12.7	13.0
United Kingdom	7.6	8.9	9.3	10.0	11.0	9.5	9.6	10.7	10.8	10.9	11.6	12.2	13.3	13.5	13.7	13.8	13.9	14.0
Italy	5.5	6.3	6.8	7.3	8.1	8.0	7.9	8.7	8.6	8.3	8.2	8.4	8.6	8.8	9.0	9.2	9.4	9.6
Spain	3.3	3.6	4.4	5.2	5.7	5.6	5.4	6.0	5.9	5.8	5.8	5.9	6.0	6.1	6.2	6.3	6.3	6.4
Russia	1.9	2.1	3.4	5.1	6.7	4.4	5.2	6.1	6.7	8.0	9.1	10.3	11.5	12.7	13.8	15.1	16.3	17.6
Switzerland	2.6	2.9	3.3	3.8	4.7	4.7	4.9	6.1	6.2	5.8	5.8	6.0	6.3	6.5	6.7	6.9	7.1	7.3
Rest of Europe	13.2	15.1	17.6	21.3	25.2	22.4	22.9	25.5	25.3	25.6	26.8	28.8	30.9	33.3	35.7	38.0	40.4	40.4
Europe total	65.8	76.0	86.6	99.1	116.2	110.2	110.9	124.8	124.7	123.7	125.8	131.8	138.4	144.3	150.1	155.9	161.6	165.0
Japan	24.2	21.9	23.2	23.8	30.4	29.8	31.6	36.0	40.0	39.7	38.9	38.9	39.5	40.6	41.7	42.8	43.9	44.9
China	7.1	8.3	8.3	9.8	11.9	13.9	17.9	21.6	24.8	28.4	32.6	37.2	42.3	47.7	53.4	59.2	64.5	69.1
Australia	2.5	2.9	3.2	4.8	4.3	4.2	4.9	5.6	4.9	4.3	4.3	4.4	4.5	4.7	4.8	5.0	5.2	5.3
South Korea	1.9	2.2	2.8	3.2	3.2	3.0	3.6	4.1	4.6	5.2	5.7	6.2	6.6	7.0	7.5	7.9	8.4	8.8
India	0.9	1.2	1.4	1.8	2.1	2.3	2.9	3.4	3.9	4.6	5.5	6.6	7.8	9.0	10.5	11.7	13.1	14.5
Rest of Asia	4.0	4.8	5.3	5.5	6.8	6.6	7.3	8.2	8.7	9.6	10.5	11.5	12.5	13.6	14.6	15.7	16.8	18.0
Asia total	40.6	41.2	44.3	48.8	58.6	60.0	68.3	79.0	86.9	91.9	97.6	104.8	113.1	122.5	132.5	142.3	151.8	160.6
Latin America	4.7	6.0	7.1	8.3	10.3	10.0	12.4	14.1	16.2	18.0	19.9	22.0	24.2	26.7	29.5	32.5	35.7	38.4
Middle East	2.4	2.9	2.9	3.6	4.5	4.7	5.0	5.7	6.3	6.9	7.6	8.4	9.2	10.0	11.0	11.9	12.9	13.8
South Africa	0.8	0.9	1.1	1.2	1.2	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.5	2.7	3.0	3.3	3.6	3.9
Africa total	2.2	2.5	3.0	3.7	3.8	4.1	4.5	4.9	5.6	6.3	7.1	7.8	8.7	9.7	10.8	12.1	13.0	13.7
World	207.9	226.4	249.9	277.7	316.2	319.6	336.1	369.7	386.4	398.8	415.6	437.7	462.4	488.3	515.2	542.3	569.1	591.2

China Healthcare Expenditure Forecast 2007-2021



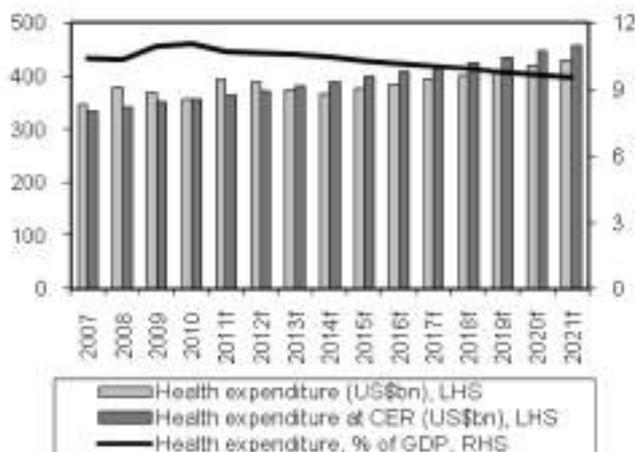
f = BMI forecast. Source: WHO, BMI

France Healthcare Expenditure Forecast 2007-2021



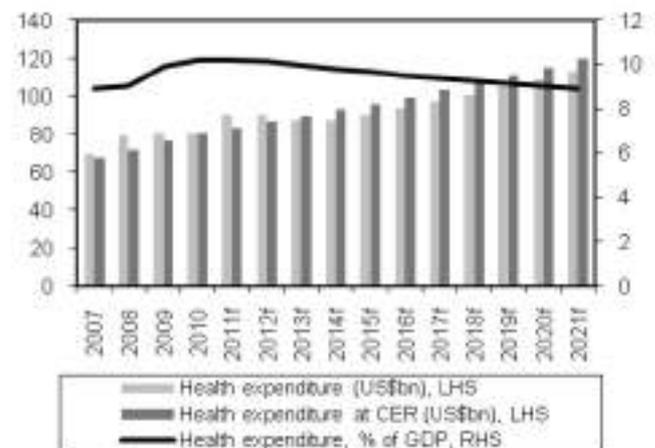
Source: World Health Organization (WHO), BMI

Germany Healthcare Expenditure Forecast 2007-2021



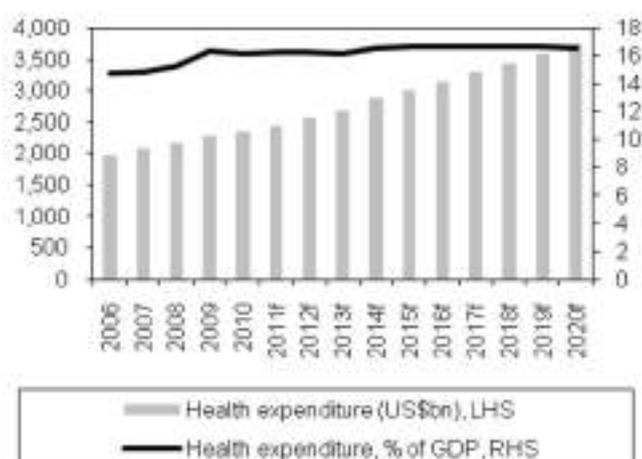
f = BMI forecast. Source: World Health Organization (WHO), BMI

Netherlands Healthcare Expenditure Forecast 2007-2021



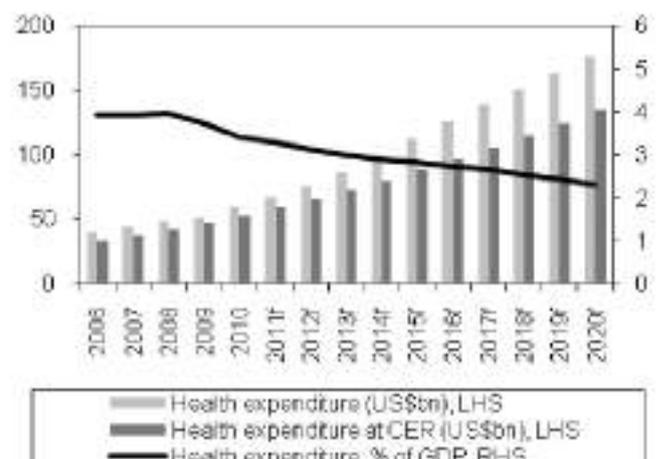
f = forecast. Source: World Health Organization (WHO), BMI

United States Healthcare Expenditure Forecast 2006-2020



f = forecast. Source: World Health Organization, BMI

India Healthcare Expenditure Forecast 2006-2020



f = forecast. CER = constant exchange rate. Source: World Health Organization (WHO), BMI

