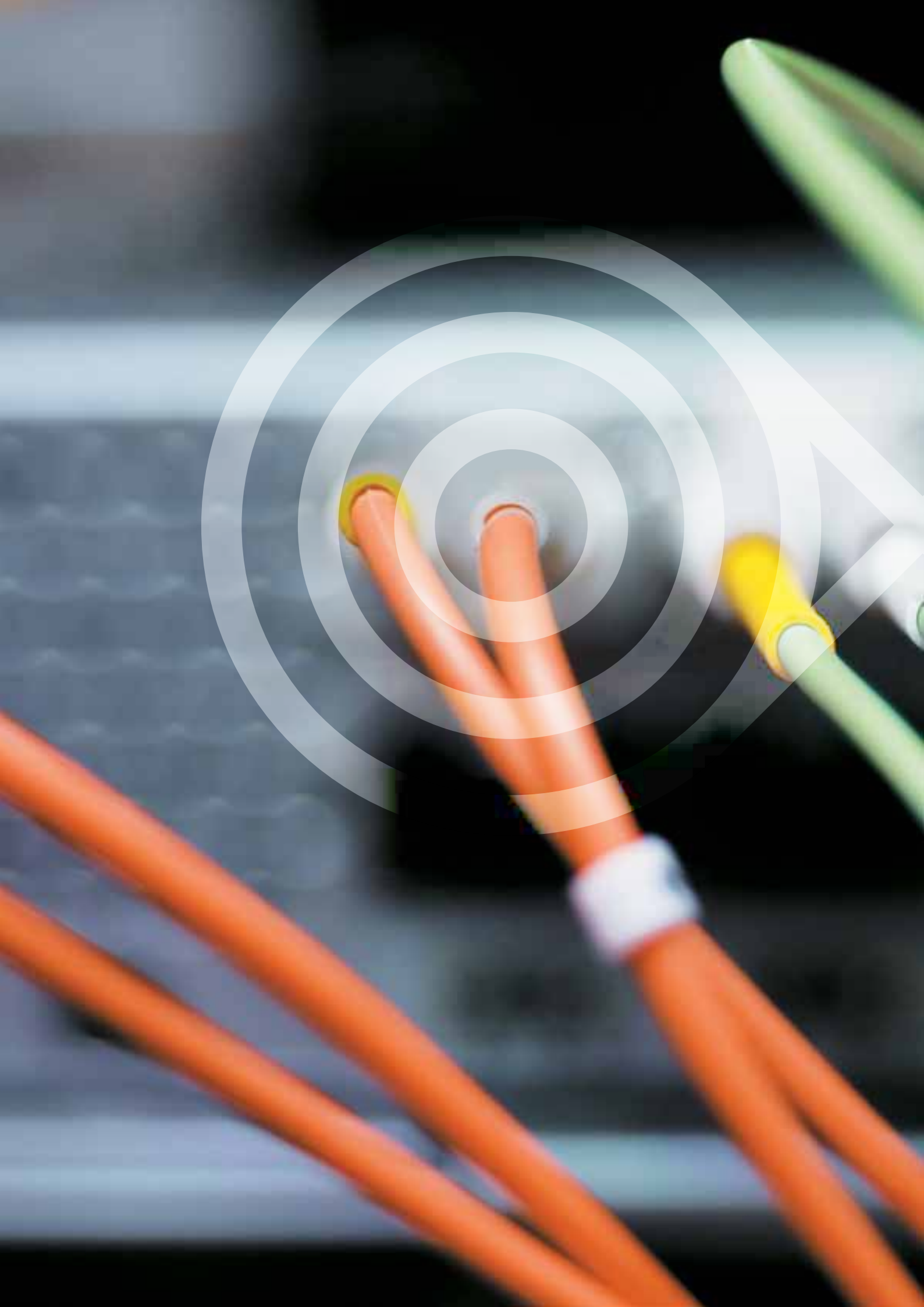

NEW ZEALAND
New Zealand Health Technology Excellence - Delivered to the World.



With a population of just over four million, New Zealand is internationally recognised for its innovative achievements in health and health technology

NEW ZEALAND HEALTH

The health system in New Zealand is based on the fundamental philosophy that healthcare should be provided to those who need it, when they need it. With a strong focus on primary care, New Zealand's health sector is internationally recognised as a provider of high quality, trusted services that are delivered cost-effectively.

New Zealand is a nation of four million people spread across two main islands. The country's small size and dispersed population constrains levels of GDP per capita and drives the need for cost effectiveness in its health services. Similarly, a tendency for New Zealanders to travel and work overseas presents workforce challenges, resulting in labour-efficiency.

New Zealand's size and geographical remoteness encourage innovation and fresh approaches to deliver smart and practical medical technology solutions that address today's needs. This is supported by a collaborative approach between medical technology companies and the New Zealand health sector. There is a rich cross-fertilisation between surgeons, clinicians and the commercial sector which results in affordable and user-focused health technologies.

Internationally, the level of collaboration found within New Zealand's health sector is rare. It results partly from close connections between the country's universities and other research institutions, but also from strong links to industry and international markets. The sector is focused on market opportunities and on building international partnerships to get the most from them.

New Zealand is well positioned in Australasia with a number of free trade agreements in place (Australia, China, Malaysia, Singapore, Thailand, ASEAN and Trans-Pacific Singapore, Brunei), and many others currently in negotiation (Hong Kong, Korea, and the Gulf Cooperation Council).

A key area of strength is IT-based health solutions that work across the continuum of care, from hospitals and community clinics, to telemedicine and home care. Another is new medical technologies that occur at the convergence of life sciences, technology and engineering disciplines. New Zealand has been able to leverage its strengths in biological and medical sciences, as well as niche manufacturing, information technology and the development of specialised electronics, to get the most from this cross over.

New Zealand is a world leader in health informatics, using its size, innovation and a flexible and responsive approach to meeting healthcare requirements to apply strategies across the whole system. Its National Health Index was initiated more than 20 years ago allowing clinical information to be transferred between agencies and linked for monitoring, research and reporting. More recently, systems have been introduced to allow fast, secure sharing of medical information between hospitals, laboratories, radiology services and general practitioners.

With a trend for healthcare to increasingly be delivered at home, New Zealand is using its capability in health informatics to inform and empower patients. By 2014, all New Zealanders will have a core set of personal health information available electronically to them and their treatment providers, regardless of where they are accessing health services.

Preventative care is a high priority for New Zealand. Its medical technology companies are well aware of the need to use preventative care to solve real problems, thereby reducing healthcare costs. Researchers and product developers work closely with clinicians and the health sector to identify medical needs, areas for improvement and potential technology development.

THE NEW ZEALAND HEALTH SYSTEM

Overall responsibility for New Zealand's health and disability system lies with the Ministry of Health which is the principal advisor to the government. The Ministry monitors regional and national services and provides regulatory functions.

The Ministry has identified priority areas to ensure New Zealand continues to deliver high quality healthcare. These include ongoing improvements in preventative and primary care, chronic disease management and associated social determinants, indigenous health, and the specific needs of children, young people and senior citizens.

The Ministry is focused on collaboration at local, regional and national levels to deliver innovative solutions and a cohesive and efficient system.

New Zealand's health system is funded via a mix of capitation and fee-for-service, and includes public, private and Non-Government Organisations (NGOs) which work together to provide and fund healthcare.

The New Zealand Government is committed to stimulating growth in the health sector and provides a range of incentives including *The New Zealand Focus on Health Business Development Challenge*. Established in 2009, the Challenge provides a platform for commercial success and delivery of innovative New Zealand health solutions into international markets.

- New Zealand is ranked #1 in overall quality of care, coordinated care and patient-centred care in a 2010 Commonwealth Fund study[1]
- A 2009 Commonwealth Fund survey ranks New Zealand first for advanced electronic health information capacity among primary care physicians and second for use of electronic medical records[2]
- Practice management software is currently estimated to be used by 97 percent of New Zealand general practices
- New Zealand has some of the most efficient hospitals in the world with spending per inpatient around half of the Australian rate and nearly one third of the Netherlands
- Over 98 percent of New Zealand general practitioners are using software for clinical purposes such as generating prescriptions and recording details of patient visits
- 99 percent of New Zealand pharmacies are computerised

1 K. Davis, C. Schoen and K. Stremikis, Mirror, Mirror on the Wall: How the Performance of the U.S. Health Care System Compares Internationally 2010 Update, The Commonwealth Fund, June 2010

2 C. Schoen, R. Osborn, D. Squires, J. Peugh, and S. Applebaum, Perspectives on Care, Costs and Experiences: A Survey of Primary Care Physicians in 11 Countries, 2009

New Zealand has some outstanding individuals, research groups and companies contributing to advances in biomedical knowledge and the development of medical technologies. UNESCO ranks New Zealand third highest in the world for the number of science graduates produced as a proportion of the population.

Two excellent medical schools at the University of Auckland and the University of Otago have an established reputation for world-class research outputs, and for developing innovative processes and technology tools that aid in teaching and also improve patient outcomes.

New Zealand health IT is pragmatic, flexible and inventive, achieving technology solutions that add value, improve quality, and deliver cost-competitive products and services.

WORKING WITH THE HEALTH INDUSTRY

New Zealand e-health vendors are well connected internationally and provide health IT solutions for healthcare practitioners around the world. At the same time, they collaborate with New Zealand's own health sector in ongoing development of innovative, practical and cost-effective IT-based solutions.

- Canterbury DHB in New Zealand is applying **Emendo's** predictive planning tools to improve patient flow across multiple hospitals. By analysing historical and real-time data from the existing patient registration system, CapPlan provides proactive information on upcoming patient workloads to inform staffing decisions. As a result, the DHB has been able to handle more patients with fewer nursing hours and has reduced the average length of stay by better allocating staff
- Procare Health Limited, with more than 500 GPs in 180 medical practices, has teamed with **Enigma** to develop a decision support system to help physicians diagnose and treat cardiovascular disease. Predict is a computerised decision support tool that delivers the latest evidence-based guidelines tailored specifically for the patient at the time of consultation. It links patient profiles, disease management and outcomes, provides feedback, and supports planning. GPs access Predict through their current practice management system

New Zealand companies and organisations are hard-working, reliable and skilled at collaboration and partnerships. E-health applications and solutions developed in New Zealand have been adapted for international markets and are being sold in Asia, Europe and North America. New Zealand's international collaboration has also extended to more formal agreements, such as the Memorandum of Understanding signed in 2008 between the New Zealand Ministry of Health and the British Columbia Ministry of Health in Canada. This agreement includes exploring the application of health IT to improve health sector efficiency.

The New Zealand IT industry has worked closely with the health sector to develop customised e-health solutions to meet business and healthcare needs. The Health IT Cluster, a not-for-profit organisation, has been set up to foster collaboration between the industry, academia and the health sector. One of New Zealand's advantages in developing new solutions is its location and demographics, which create a small but well-defined environment that is excellent for market testing.

The net effect of this collaboration is an e-health incubator environment where new solutions are developed and nurtured through close collaboration and a continual exchange of ideas. Through this process, New Zealand e-health vendors gain an intimate understanding of the underlying clinical processes supported by their solutions, as well as the business drivers that justify purchasing decisions.

Solutions that make Sense on a Global Level

New Zealand e-health vendors have valuable and proven experience developing practical, integrated solutions in collaboration with healthcare providers and each other. By working closely with providers, they understand how to develop affordable, user-focused solutions that intelligently balance need against cost and result in greater adoption of e-health solutions.

HEALTH INFORMATICS

New Zealand is technologically savvy and advanced. Its health sector is characterised by groundbreaking technologies that drive efficiencies and deliver better health outcomes while maintaining the highest levels of care and safety. The country has a high adoption rate of Electronic Medical Record (EMR) systems, with nearly all of New Zealand's general practitioners using computerised systems for clinical as well as administrative purposes, and 100 percent of laboratories communicating via secure health data networks every day.

New Zealand health IT companies are also leaders in the development and refinement of systems that achieve the right balance between functionality, usability and affordability. Smart and cost-effective health IT solutions developed in New Zealand include:

Electronic Health Records

Large hospitals are typically swamped with isolated islands of information and many have stand-alone software products, each of which require different passwords. **Orion Health's** single sign-on Concerto™ clinical portal Rhapsody™ integration engine and workflow solutions provide healthcare workers with easy access to patient data and trends, reducing errors and omissions and streamlining information flows within facilities, between organisations, and across regions. Orion Health has clients in more than 20 countries and is currently partnering with a number of healthcare and IT vendors including Oracle, Logica and Philips to deliver integrated healthcare solutions and services.

Practice Management Systems

Software company **Intrahealth** specialises in EMR, case management and shared care planning systems for ambulatory care, hospital outpatients and community care and offers a range of products for use at the point-of-care. These include Profile which provides practice management and electronic medical records, allowing access to essential patient and clinical information from any location; Accession, a web-based patient and provider application; HealthCare Community (HCC), a complete case management application; and a Shared Comprehensive Care Plan (SCCP) to integrate patients and providers of care. Intrahealth has operations in New Zealand, Australia and Canada.

Medtech Global's technology solutions enable health professionals to efficiently manage their patients, resulting in better patient health outcomes. With a patient-centric approach to healthcare and health informatics, Medtech understands the needs of general practitioners, specialist, residential care facilities, hospitals, healthcare support services, and their management. Medtech is a key player in healthcare solutions in Australasia and is expanding its operations into Asia, Europe and North America.

Houston Medical's VIP.net practice management system provides a fully integrated paperless solution for small and large specialist practices. The software combines modules for many areas, including day surgery, ophthalmology, cardiology, and endoscopy, ensuring all correspondence, equipment, insurance company billing and Dicom imaging is in one place. This tight integration across financial, claiming, administrative, and clinical areas ensures Houston's EMR solutions deliver return on investment (ROI) many times over through smoother workflow, improved data quality, boosted productivity and reduced costs. Houston's software is used by hundreds of leading practices across Australia, New Zealand and the Pacific.

Capacity Planning and Resource Management

Solving operational performance issues in hospitals is the field of healthcare capacity planning experts **Emendo Limited**. Emendo has developed CapPlan software to accurately match resources with demand for services while enabling staff to deliver excellent standards of care. CapPlan allows hospitals to efficiently and effectively plan and manage patient workloads by providing scenario planning, forecasting and viewing capabilities across inpatient beds, Accident and Emergency, theatre and outpatients. Emendo has customers in New Zealand, Australia, Canada and the UK.

Organisational Efficiency

Winscribe Dictation offers a software solution that covers all digital dictation, transcription, voice recognition, and workflow management requirements of the modern healthcare organisation while providing full patient data security levels. This results in accelerated processes, the ability to treat more patients, reduced waiting times, fast return on investment (ROI) and overall improved patient care. The system can be integrated with HIS, RIS and EPR systems and is fully scalable, allowing healthcare organisations of all types and sizes to speed up their document creation process while increasing efficiency. Winscribe's solution is used in 25 countries worldwide.

Radiology

COMRAD is a leading provider of Radiology Information Systems (RIS) within New Zealand and Australia, and has products installed at over 390 sites. The COMRAD RIS brings all aspects of a radiology business together, from referrals to patient treatment and payment, and provides the efficiencies and proven work-flows to help deliver the best clinical and business outcomes. COMRAD caters for multi-user, multi-site, multi-company radiology practices and can be configured to suit individual practice requirements.

Emergency Services

The Optima Corporation's operations research technology is helping ambulance services around the world optimise their resources. Optima Predict accurately simulates and models various scenarios and helps to set response times, staffing levels, and where and when new service centres need to be established. Optima Live has been developed specifically for emergency and ambulance services and uses sophisticated mathematical algorithms to match resources to demand. Optima NET is a non-emergency transport solution that automatically schedules patient transports to the most appropriate vehicle(s). Optima's technology is established at 30 sites in six countries including Denmark, Holland, the UK, Canada, the US, Australia and New Zealand.

Training

SIMTICS has developed and brought to market a unique web-based learning environment that integrates a virtual reality cognitive simulator with rich text, interactive 3D anatomy, and high-definition video. These elements are used to teach the cognitive process involved in learning a procedural task. SIMTICS has over 25 modules covering procedures such as Lumbar Puncture and Chest Drain. Its system is already in use for teaching medical students and trainees in Europe, America and Australasia and has potential to be applied in other markets.

NEW ZEALAND'S MEDICAL TECHNOLOGY SECTOR

With its flexible and collaborative approach, innovative and efficient product solutions, and demonstrated capabilities in niche products, New Zealand's vibrant medical technology industry is well placed to provide practical, easy-to-use, cost effective solutions that improve clinical outcomes.

There is a broad spectrum of manufacturers and researchers in the New Zealand sector, ranging from small New Zealand companies to globally recognised corporations. The sector includes medical devices, in-vitro diagnostics, dental equipment and medical imaging equipment.

New Zealand medical technology manufacturers have often been at the forefront of innovation through globally recognised leaders such as Colin Murdoch who invented the disposable syringe and Sir Archibald MacIndoe who pioneered modern-day plastic surgery techniques.

Competitive advantages

The New Zealand medical technology sector has competitive advantages that set it apart from the rest of the world:

- Its size and geographical position has embedded a culture of strong collaboration between scientists, engineers, entrepreneurs and medical professionals
- A very recent pioneering background has created an environment of practical product innovation
- Proven capabilities in niche products that bridge gaps in the healthcare chain
- Geographical isolation and a certified disease-free animal stock underpinning a strong platform for animal-based therapeutics
- Outstanding ability to provide cost competitive services to the global healthcare segment for high-end, niche, low-run design and manufacturing

Respiratory

Fisher & Paykel Healthcare Limited is a technology leader in the New Zealand medical device sector. Its respiratory humidifiers and obstructive sleep apnoea devices bring relief to millions of people all over the world. Fisher & Paykel currently achieves sales of US$342 million annually (2009/2010). It is one of the ten largest companies on the New Zealand stock exchange and one of the largest manufacturers. Fisher & Paykel Healthcare Limited focuses on three key product groups – obstructive sleep apnoea medical devices, humidification systems and neonatal medical devices.

KM Medical Limited is a world leader in researching and developing radical and innovative resuscitation and ventilation technology. Its patented Neonatal Resuscitator/Transport Ventilator – the Next Step – was developed to meet the needs of 10 million newborns who require resuscitation assistance each year. KM Medical has also developed the Next Step Military Resuscitator/ Transport Ventilator, a small, lightweight unit with 12 hour battery power that is suitable for front-line combat use. Both Next Step units are electronically-driven and incorporate a CPU to provide both resuscitation and ventilation.

Design, consultancy and manufacturing

Established as a subsidiary of an award winning design and manufacturing company, **Adept Limited** creates niche, quality solutions in partnership with medical professionals, health providers and medical technology companies. Adept provides consulting and design expertise and develops full manufacturing projects. Its products are manufactured under a certified quality management system that meets the requirements of GMP and FDA QSR. Sterile products are manufactured in the company's Grade C cleanroom. Adepts' range of surgical products for the ENT market is supplied worldwide under the NeoZoline™ brand. Adept also supplies components for global companies to incorporate under their own brands.

Robotic Aids

Rex, the Robotic Exoskeleton, is a pair of robotic legs that enables full-time wheelchair users to stand up, walk and go up and down steps. Made in New Zealand by **Rex Bionics**, Rex is constructed from strong, lightweight and extensively tested materials and is designed to support and hold a person comfortably as they move. Rex is available in New Zealand and the company has completed the requirements of the CE mark to allow sales in Europe. It expects to start selling in Australia and the UK in 2011.

Medical Beds

Howard Wright specialises in the design, manufacture and distribution of medical beds and stretchers. Howard Wright's research and development team works alongside users of its products, from nurses and patients through to maintenance technicians, listening, questioning, observing and discovering ways its products can make their lives and work easier. Howard Wright's design approach has resulted in simple, smart and human products which reduce patient handling, user training and maintenance costs. Howard Wright sells its products in New Zealand and in countries around the world including Australia, Japan and Belgium.

Cleaning Technology

FR Galantai Manufacturing's PULL THRU/PUSH THRU range of single-patient use channel cleaning devices provides competitive advantage in the efficient cleaning of endoscopes and other medical equipment channels. The scientifically proven devices use patented wipers made of a soft plastic compound that do not damage the inside of the channel. If in-house practice allows, the single pass action can save time and money by eliminating the need for repeated brushing. The disposable, single-patient use products remove the risk of cross infection. FR Galantai Manufacturing's products have European CE medical marking.

Personal Emergency Response Systems

Electronics company **Chiptech** is the leading manufacturer of personal emergency response systems (social alarms) in Australasia. Its product range includes home based personal alarms to summon emergency help, security cameras and automation systems, transmitter and receiver devices. Chiptech's Personal Response Unit (PRU) provides both telecare and telehealth functions including medication management, caregiver and activity monitoring, along with the capability to collect and forward health data. Chiptech's products are available in New Zealand and Australia with sales being expanded into the UK, Germany and Singapore.

Diagnostic Devices

With the end user in mind, New Zealand medical device company **Pulsecor** has developed products to enable non-invasive measurement of arterial health and heart function. The hallmark of Pulsecor technology is ease-of-use. The company understands that monitoring in real medical situations needs to be hassle free, cost effective, accurate and robust. Pulsecor technology is portable, easy, quick and as comfortable to use as the familiar upper arm blood pressure cuff, yet is able to measure arterial stiffness, heart function, central blood pressure and the traditional peripheral blood pressure.

Tissue Regeneration

Mesynthes is a regenerative medicine company focused on developing and commercialising products for wound care and reconstructive surgery. Mesynthes has developed Endoform™, a novel extracellular matrix based technology with the following advantages:

- Superior regenerative properties – encourages rapid vascular ingrowth, cell proliferation, matrix deposition and remodelling
- Tuneable strength – can be laminated to meet varying strength requirements

- Totally replaced over time – undergoes normal constructive remodelling resulting in minimal scar formation
- Safety – prion-free due to New Zealand origin and ovine-human species barrier to transmission
- Culturally acceptable – ovine origin

Mesynthes has gained 510(k) approval from US FDA and is launching Endoform Dermal Template™ for use in the following:

- Wounds – partial and full thickness, surgical, traumatic, tunnelled/ undermined
- Ulcers – pressure, venous, vascular, diabetic

Mesynthes has developed expertise in extracellular matrix biology and processing. The company has established a capability for automated processing of biological tissues including cleanroom and lyophillisation facilities.

Therapeutic Natural Products

Comvita is a trusted global brand, committed to developing innovative natural health and wellbeing products, backed by credible scientific research. Comvita is the world's largest manufacturer and marketer of Manuka (Leptospermum) honey, under its Medihoney™ brand. Leptospermum honeys, which are native to New Zealand, have unique antibacterial and healing properties that make them ideal for use in wound and skincare products. Medihoney™ products contain a standardised medical grade of honey from these species. The company sells its products in over 20 countries.

an array of exciting commercial ventures and research and development partnerships

CONVERGENCE

New Zealand has an exciting ability to merge and integrate diverse technologies, exemplified by collaboration and convergence between its medical technology companies and the New Zealand health sector. It is not unusual for an anesthetist to work with an engineer to develop a new anaesthetic device or a designer to work with a surgeon to develop new instruments.

Wound Scanning
An example of sector collaboration is **ARANZ Medical**, a member of the ARANZ group of companies – creators of leading solutions for 3D modelling, scanning and medical information software applications.

ARANZ Medical's flagship offering is the Silhouette™ Product Suite, a unique wound information management system and the first of its kind to incorporate a 3D imaging device to precisely and consistently measure the size of a wound. Silhouette integrates quantified wound images with other essential data to provide an accurate and complete record of the assessment and treatment of a wound. The effectiveness and accuracy of Silhouette has been proven through its extensive use in clinical studies.

Silhouette enables a healthcare facility to increase the accuracy and consistency of its wound assessments and documentation, as well as promoting standardisation and increased caregiver adherence to protocols for risk assessment and wound management. Silhouette provides reporting on quality indicators and outcomes within a single facility or across multiple locations and can be integrated with a hospital's existing electronic medical records to eliminate redundant data entry.

The Silhouette Product Suite currently includes SilhouetteMobile™- a portable device that makes it easy to capture images, takes measurements, records notes and generates reports in a highly automated process – and SilhouetteCentral™ – which stores and organises wound information collected by SilhouetteMobile.

ICU Management
Another outcome of collaboration is **Precept Health's** clinical information systems which are used in a range of healthcare environments, including intensive care units. Its flagship product, ICU Care, delivers end-to-end intelligence on patient data collected along the clinical pathway – from pre-operation, anaesthesia, through to recovery and discharge, and including medical device integration. Precept focuses on ensuring optimum patient outcomes while also focusing on rigorous cost, funding and resource control. Its systems are used in New Zealand, Canada, South East Asia, and in parts of Europe through distribution partners Mexsys SA, and GC RRITS.

Anaesthesia Management
Safer Sleep's SAFERsleep® System provides an anaesthesia safety and electronic record solution for hospitals and ambulatory surgical facilities. Combining barcode technology, touch screen controls, and workroom organisational tools, the system has been shown to reduce the incidence of bolus-to-bolus drug error by more than 35 percent. Safer Sleep has added a web-based, electronic preoperative assessment system which makes records more accessible and automatically transfers safety information to the theatre system.

Skin Cancer Detection
MoleMap's integrated imaging and teledermatology solutions provide what is regarded as the world's most comprehensive melanoma surveillance programme. MoleMap's exclusive portfolio of proven proprietary technologies for the early detection of skin cancers includes digital imaging devices, software applications and a telemedicine platform for use by physicians, health systems, hospitals and centers of excellence. Its newest innovation, MoleCam, is specifically designed for viewing and recording skin lesions during regular clinic visits. MoleMap's early detection system is built on a validated platform, best practice procedures, access to experienced melanoma dermatologists, and a convenient skin cancer detection system through a network of clinics staffed by trained nurses.

FOR MORE INFORMATION

The Ministry of Health has overall responsibility for New Zealand's health and disability system and is the principal advisor to the government.
www.moh.govt.nz

The New Zealand Health Information Service is a group within the Ministryof Health responsible for the collection and dissemination of health-related data.
www.nzhis.govt.nz

The New Zealand Medical Association is the country's largest pan-professional medical organisation with members from all disciplines within the medical profession.
www.nzma.org.nz

IPAC is an organisation supporting the role of organised general practice, which resides at the heart of New Zealand's primary healthcare system.
www.ipac.org.nz

Supporting Organisations

The **Medical Technology Association of New Zealand** (MTANZ) is the leading industry body representing medical technology manufacturers, importers and distributors of medical devices in New Zealand. MTANZ aims to increase awareness of the industry in New Zealand and internationally to ensure the healthcare system and patients benefit from innovative medical technology, and to support New Zealand manufacturers in developing markets offshore.
www.mtanz.org.nz

The **New Zealand Health IT Cluster** is a vibrant alliance of organisations interested in health IT – comprising software and solution developers, consultants, health policy makers, health funders, infrastructure companies, healthcare providers, and academic institutions – who have agreed to work collaboratively.
www.healthit.org.nz

New Zealand Trade and Enterprise is the New Zealand Government's national economic development agency. Through our network of offices worldwide, we aim to improve the international competitiveness and sustained profitability of New Zealand business by providing access to people, knowledge and opportunities. NZTE can provide more information on New Zealand health technology companies.
www.nzte.govt.nz

New Zealand Trade and Enterprise (NZTE) is the New Zealand government's economic development agency. NZTE works to stimulate economic growth by helping to boost export earnings, strengthening regional economies, and delivering economic development assistance to industries and individual businesses.

As a global organisation, we use our knowledge and contacts in overseas markets to connect New Zealand businesses with trade and investment opportunities.

Visit **www.nzte.govt.nz** for more information, including contact details for your nearest NZTE office

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