

## Canadian Life Sciences Overview

### Introduction

The global market for health products and services is enormous. It is estimated at more than \$2 trillion dollars annually. Canadian suppliers are working to capture a larger share of this market. Life Sciences industries include three sectors: **medical devices, pharmaceuticals and health services**. In all three areas, Canadian healthcare managers are working hard to make their systems more effective, less costly, less institutional, and more community based. The rapidly emerging Canadian health industries are dynamic, progressive and knowledge based, producing exportable processes, products, services and expertise that are ready for the international marketplace.

### The Medical Device Industry

The Canadian medical devices sector is made up of firms that provide a wide range of products used for diagnosis and treatment of ailments, including: medical, surgical, and dental equipment; furniture; supplies and consumables; orthopaedic appliances; prosthetics; electromedical equipment; as well as diagnostic kits, reagents and equipment.

### Industry Size and Structure

- 800 manufacturing firms employing an estimated 18,000 people
- Approximately 90 percent of firms are Canadian owned;
- 75 percent of all firms employ less than 50 people;
- Development of regional industry associations, as well as the national association, Medical Devices Canada (MEDEC), plus a number of relevant horizontal associations (e. g. Canadian Advanced Technology Association, Electro-Federation Canada);
- Production: estimated at \$2.7 billion in 1998;
- Consumption: estimated at \$4.3 billion in 1998, accounting for 2.0 percent of the global market;
- Costs squeezed domestic market dominated by multinational enterprises (MNEs), mainly U.S. owned;
- Limited value added and international mandates for MNE subsidiaries;
- Imports: \$3.0 billion (1998);
- Exports: \$1.4 billion (1998), up 27 percent from 1997;
- Key markets: United States, Europe and Japan;

Recognized strengths of the Canadian Medical Devices industry include:

- Cardiovascular: e.g. heart valves, pacemakers, and catheters;

- In vitro diagnostics: e.g. for cancer, hepatitis and sexually transmitted diseases;
- Radiation therapy and therapy planning software;
- Medical imaging: e.g. 3D imaging, image archiving systems, and ultrasound scanners and related software;
- Dental: e.g. high-speed steam sterilizers; dental materials, including implants; and sundries;
- Assistive devices/home health care: e.g. mobility aids and peritoneal dialysis equipment and supplies;
- Orthopaedics/prosthetics/orthotics: e.g. artificial limbs, including myoelectric hands.

### **Canadian Industry Advantages**

#### Cost of Manufacturing

A recent study of the costs of doing business in Canada, the United States, Japan, Austria, Germany, Italy, France and the United Kingdom showed Canada to be the lowest cost location for medical device manufacturing.

#### Free Trade Agreements

Through NAFTA, Canada now has greater access to a combined market of over 365 million people, representing 45 percent of the global medical device market. Canada's attractiveness as an investment location for firms that are not North American based is thus augmented. Canada's free trade agreements with Chile and Israel provide further enhanced market access opportunities for medical device firms.

#### Research Infrastructure

Canada has a world class research base in its medical schools, teaching hospitals and other institutions, and has an excellent infrastructure for conducting clinical trials. After telecommunications, healthcare Research and Development (R&D) expenditures represent the second largest sector specific investment in R&D in Canada.

#### Favourable Research and Development Environment

Canada's generous R&D tax treatment makes it an attractive location for companies to leverage their R&D investments.

#### Regulations

Canada's Food and Drugs Act permits manufacturers to export product in accordance with the receiving country's laws, irrespective of domestic approval status; this export provision has prompted some foreign owned companies to establish export manufacturing from a Canadian base. It should be noted, however, that recent changes to Food and Drug Administration (FDA) legislation in the United States have somewhat

streamlined export controls for medical devices in that jurisdiction. U.S. manufacturers of medical devices can now export a product to any country based on approval in any one of a number of industrial countries (including Canada) listed in the legislation. In the case of products not specifically for export, regulatory changes in Canada (cost recovery and introduction of a risk based regulatory system) may increase the overall costs to companies of selling medical devices in Canada.

#### Market Trends

International market trends include:

- Seven percent growth in the world market for medical technology in 1998 (to \$147 billion US) and projected steady growth over several years;
- Significant market growth in developing and newly industrialized countries (emerging markets are forecasted to total US \$24 billion in 1999);
- An increase in home health care in some developed markets; and
- A focus on disease specific requirements (e.g. AIDS, hepatitis and cancer).

#### Production Trends

International production trends include the following factors:

- The key players in medical device production are the United States (with 47 percent of production in 1996 or \$61.2 billion US), Western Europe (28.4 percent) and Japan (14.6 percent). U.S. companies have made a significant shift to offshore manufacturing, largely due to their regulatory climate and labour rates.
- The device industries in emerging economies such as China, Taiwan, and Mexico are now entering international markets (accounting for 8 percent of global production in 1996).

#### Major Markets

The key markets for medical devices are the United States, the European union and Japan, These markets account for 42 percent, 27 percent and 14 percent of the global medical device market, respectively.

The most important market for medical devices, in 1998, was the United States at \$62.3 billion US. Although the U.S. medical device market is the largest in the world, its share of the total world market has declined from 60 percent in 1975 to 42 percent in 1998. The U.S. health care environment is characterized by strong competition, a complex regulatory environment under reform, rapid consolidation of purchasers, and the importance of supplier visibility and after sales service. The market grew by about 8 percent in 1998 due to the continued aging of the population and strong demand for advanced medical technologies. It is important to note that the U.S. market is not homogeneous, but rather consists of a number of regional markets. In total, the U.S. market accounts for 67.5 percent of total Canadian medical device exports.

The European Union (EU) market accounted for at \$39.6 billion US. This region is expected to remain a market of great importance. The implementation of a harmonized regulatory system for devices within the EU should allow for more efficient product approvals in Europe for firms that are adequately prepared. Companies must comply with CE marking requirements for the sale of medical devices in the EU. The Mutual Recognition Agreement (MRA) with the EU for the regulation of medical devices should facilitate Canadian firms' entry to the market.

In a recent survey of Canadian medical device firms conducted for Canada's Department of Foreign Affairs and the law firm Grasset Fleisher, 23 percent of respondents indicated that they have established permanent operations in Europe. The leading choice of country to do business in was identified as the U.K., owing to its common language, culture, legal system and large market. However, entry into any one of the EU member states will provide Canadian firms with opportunities for the establishment of alliances and/or permanent operations in other member states. Some strategists suggest the Benelux as a good "neutral" region for clinical and market trials for acceptance throughout Europe.

The Japanese market is measured at \$20.4 billion US. The Japanese medical device market is the second largest single country market in the world. The market will continue to grow as Japan's population continues to age more rapidly than that of any other developed country. It is estimated that by the year 2010, people over the age of 65 will account for 21 percent of the total Japanese population, representing the highest percentage of senior citizens of any country in the world. This demographic trend is also generating cost containment pressures in the Japanese health care market including greater emphasis on home care. Home health care products currently account for approximately half of Japan's health industries market. Cost containment pressures are also causing Japanese buyers to pay increasing attention to the economies and lifesaving benefits of certain technologies. The "silver market" (products for the elderly) and the assistive devices/rehabilitation equipment market are being under served by domestic Japanese production, while Canada has strengths in these areas. Canada has also had some success in exporting dental instruments, surgical and orthopaedic supplies, as well as radiology and imaging technology to Japan. Market opportunities also exist in cardiovascular and implantable devices

#### **Other Market Developments**

Asian markets for medical devices grew substantially in the period 1994 - 1997, at an average annual rate of 17 percent. While these markets were poised for increased spending on health care and medical technology, the Asian financial crisis is having an impact on market growth in this region. The average growth rate for Asian medical device markets (excluding Japan) in 1998-99 is projected to be 12 percent. The Korean market has been the most affected by the economic downturn, declining by 10 percent

in 1998. Examples of 1998 market size by country are as follows: China \$1,934 million US, India \$1,029 million US, Taiwan \$919 million US, Korea \$853 million US, Hong Kong \$593 million US and Thailand \$267 million US. Canadian device firms have not yet developed much presence in these markets.

Mexico and the South American markets of Brazil, Argentina and Chile are beginning to attract Canadian interest. Their medical device markets in 1998 were estimated as follows: Brazil \$2,231 million US, Mexico \$750 million US, Argentina \$662 million US, and Chile \$358 million US. Projected 1999 market growth rates are as follows: Chile 12 percent, Brazil and Argentina 10 percent, and Mexico 5 percent. As a result of free trade agreements with Mexico (NAFTA) and Chile, Canadian manufacturers of medical devices are well positioned to take advantage of opportunities in these countries.

Caribbean markets for medical devices, while small, are heavily reliant on imports and Canadian exporters can benefit from the support of Canadian Trade Commissioners in the region. Plans to build healthcare facilities and upgrade existing ones will continue to provide Canadian firms with opportunities in several countries, including Barbados and the Bahamas. In Cuba, health biotechnology expertise offers the possibility of joint venture arrangements. In Guyana, proposed IFI (international financial institutions) projects should bring opportunities for the supply of medical equipment and consulting services.

Eastern European markets may also provide opportunities for Canadian manufacturers of medical devices. Many healthcare needs in Russia and the newly independent states have not been addressed. Economic constraints currently being experienced by these countries are making business conditions difficult. However, on an encouraging note, the Russian medical device market grew by 3 percent in 1996 (after several years of contraction) to reach \$450 million US. Opportunities exist for joint ventures with Russian firms. World Bank projects directed to healthcare reform in Poland, Hungary and certain of the newly independent states offer prospects for Canadian exporters of both medical products and services.

### **The Pharmaceutical Industry**

The Canadian pharmaceutical industry is comprised of three key segments:

- The subsidiaries of multinational brand-name drug producers, many with research and product mandates, as well as Canadian-owned generic drug companies;
- A dynamic and growing small and medium-sized biopharmaceutical industry; and,
- Contract research organizations, Canadian universities and academic centres which play a pivotal role in the research activities of the industry.

### Industry Size and Structure

The Canadian pharmaceutical industry is comprised of a number of players including

brand name pharmaceutical corporations, generic drug manufacturers, a growing number of small and medium-sized biopharmaceutical companies and well-established contract research and clinical trials organizations. Canadian universities, hospitals, research institutes and Networks of Centres of Excellence also play a pivotal role in the research activities of the industry.

In Canada, large pharmaceutical companies are clustered in the Montreal and Toronto metropolitan areas, as are the majority of contract research and clinical trials organizations. Several of the major firms have world product manufacturing or R&D mandates. In addition to these centres, biopharmaceutical firms can also be found in Vancouver, Edmonton, Saskatoon, Winnipeg, Ottawa and Halifax. Many of these firms have strategic partnerships with large pharmaceutical firms. The underlying research infrastructure and networks of hospitals, universities, research institutes and government laboratories are found across Canada. Many of these institutions have active industry liaison programs and are active in research collaborations, clinical trials and technology transfer activities.

Canada is increasingly attracting significant international and domestic pharmaceutical investment in research facilities and manufacturing. Recent major investments have been made by Astra Zeneca, Pasteur Merieux Connaught, Hoechst Marion Roussel, Glaxo Wellcome, Amgen and Apotex.

#### Industry Facts and Figures:

- 1997 employment estimates: brand name pharmaceutical companies: 20,000; generic pharmaceutical companies: 5,600; bio-pharmaceutical companies: 6,700;
- 15 of Canada's top 50 Research and Development (R&D) spenders in 1998 were pharmaceutical companies;
- 148 manufacturing establishments in 1997 producing or distributing a full range of pharmaceutical products;
- A growing number of biopharmaceutical firms, with over 100 SMEs, many involved in alliances with large pharmaceutical firms;
- 1998 shipments: \$5.8 billion;
- 1998 exports: \$1.5 billion;
- Brand name pharmaceutical companies spent \$750 million on R&D in 1998; generic drug companies spent \$185 million on R&D in 1998; biopharmaceutical firms spent \$635 million on R&D in 1997;
- About 140 contract research and clinical trials organizations offer integrated services to pharmaceutical and biotechnology companies to take a new drug through the developmental and regulatory process;
- A solid health science research infrastructure with 16 medical schools, over 100 teaching hospitals and 30,000 medical researchers, government laboratories and Networks of Centres of Excellence.

- Canadian exports were valued at \$1.5 billion in 1998, with about 70% of exports to the United States;
- The Canadian brand name pharmaceutical sector has benefited from major global research and manufacturing mandates;
- Generic manufacturers are active in foreign markets; they export more than 40% of their finished products;
- Canada ranks second worldwide, in terms of number of biotechnology companies, after the U.S. and has the 4th largest biotechnology company in the world, BioChem Pharma, based in Laval, Quebec.

### **Pharmaceutical Industry Trends**

Factors that are reshaping the industry in Canada, as well as internationally include:

- Consolidations, mergers and acquisition
- Strategic partnerships and alliances between large pharmaceutical firms and biopharmaceutical companies;
- Growing reliance on out-sourcing clinical research and manufacturing;
- Cost containment pressures restricting drug pricing and market accessibility;
- Growth of evidence-based medicine, requiring improved drug monitoring and measuring capability, made possible by improved information management;
- A shift from chemistry-based drugs to biology-based therapies;
- Increasing use of pharmacogenomics to understand effects of individual genetic variations on drug response;
- Increased incidence of catastrophic or long-term illnesses associated with age and specific diseases such as AIDS;
- An explosion of demand in new international markets as a result of modernizing health care systems and the demand for inexpensive, high quality products;
- Growing social acceptance and use of alternatives to drugs and preventative health care.

### **International Market Opportunities**

Canadian generic and brand-name industries are active in the export markets. Canadian SMEs are largely in the drug development stage, where strategic alliances play an important role. Canadian SMEs are expected to become increasingly active in export markets as products come to market;

- Contract research and clinical trials organizations continue to provide services to domestic and internationally-based pharmaceutical and biopharmaceutical companies;

- Canadian research institutes, hospitals and universities are actively involved in research collaborations and clinical trials with the pharmaceutical industry;
- Canada's well-established research and hospital infrastructure, highly skilled research and medical professionals, generous Scientific Research and Experimental Development (SR&ED) tax credit program, internationally competitive patent regime, and outstanding quality of life, all contribute to making Canada a very attractive location for international pharmaceutical investment.

#### Export Opportunities for Canadian Firms

- The total world ethical pharmaceutical market grew by 7% in 1998, reaching a total of \$302 billion, and is expected to increase by a rate of 8% annually over the next five years;
- The U.S. is still the largest market, with sales of \$99.5 billion, followed by Japan with \$39.6 billion, and Germany with \$18.2 billion;
- The fastest growing ethical pharmaceutical markets are Central Europe, up 28.5% from 1997, the Middle East and Africa up 10.1% and Southeast Asia, up 8.4%;
- Among the fastest growing European generic markets are France, Spain, Italy and Belgium, and China and India offer the most potential in the Asian market.

#### The Health Services Industry

The Canadian health services sector can be broken down into eight general categories as follows: telehealth/health telematics/health informatics; contract research organizations; health administration and consultants; institution and facilities management; continuing medical, nursing and allied health education and training; architectural and design services; clinical services, and health insurance. Canadian expenditures in the health services sector were estimated to be \$56.7 billion in 1997.

The eight categories which comprise the health services sector are:

- Telehealth/health telematics/health informatics: Diagnostic and direct patient care: the remote provision of clinical services to an individual either at home or at a clinical site; Peacekeeping, battlefield, and victim assistance services: the remote provision of clinical services to military personnel and disaster victims; Professional backup: the remote support to health care providers from providers with specialized expertise; Consumer health information: the online delivery of health related information for decision making and self-service by consumers; Continuing professional education: the distance delivery of continuing professional education to health care providers; Management of health delivery systems: the remote provision of administrative services in support of health care delivery.

- Contract research organizations: contract research services, clinical trials/studies for pharmaceutical, biotechnology and medical devices companies.
- Health administration and consultants: governance strategies for national health systems; health infrastructure policy and programming; technology transfer programming; technology assessment and cost benefit analysis; applied health research; standards of care; equity investments in health care; and developing and restructuring health insurance systems.
- Institution and facilities management: comprehensive facilities management for long and short-term care; home health programs and support systems; centres of excellence for specialized care; operational management for health care institutions; consulting in technical specialties; and clinical laboratory installation and testing.
- Continuing medical, nursing and allied health education and training: staff development and training; program development and delivery; public and occupational health; and disaster and emergency relief.
- Architectural and design services: functional planning and design; redesign of existing physical infrastructure to meet emerging health needs; and build, own and operate system for hospitals, clinics or managed care facilities.
- Clinical Services: diagnostics; ophthalmology; dentistry; and psychiatry.
- Health Insurance: extended medical care; pharmaceutical care; and travel.

### **International Markets**

Opportunities for Canadian health service providers can be found in developed, newly industrialized and developing countries. This 1999/00 plan targets opportunities in the telehealth segment, and activities in three developed markets: the United States, European Union (EU) and Japan. Other markets such as Argentina, Czech Republic, India, Malaysia, South Africa, and the United Arab Emirates also offer health services opportunities and may be explored pending budget availability.

Decreasing health care budgets, coupled with rising health technology costs and increasing demand for health care services, are driving the global search for more cost-effective solutions to health care delivery. The potential of telehealth as an enabler for quality health care delivery is quickly becoming apparent. Drivers of demand growth include aging populations, geographic dispersion, limited access to health care, an emphasis on "wellness", increased demand for professional credentialling, rapid changes in health and information technologies, and pressures for cost containment.

Global demand for direct patient care telehealth services by the year 2000 is estimated to be at least US \$ 800 billion. The primary demand will continue to be for specialty skills in areas such as teleradiology, telecardiology,

tele dermatology, telepsychiatry, and emergency medicine.

A high growth area is homecare, especially in developed economies with an increasing number of affluent, older citizens with chronic health conditions. Whereas pressure for efficient use of skilled professionals has led to a "centralized" delivery system (with patients travelling to the health care provider), now "efficiency" and demand for increased quality of care is dictating tele-assisted care options. The trend towards outpatient surgeries and early release from hospital, coupled with the need for cost efficiencies in providing regular medical support for those with chronic and terminal conditions, has led to a heightened interest in homecare options. Given the advantages of homecare in cost containment and positive clinical benefits, telehealth applications are attractive both in urban settings and with geographically dispersed rural populations.

As health systems struggle to become more efficient and cost effective, there are opportunities in a range of areas such as design and maintenance of communications infrastructures, software development, systems restructuring, management of dispersed emergency care services, and medical records technologies. There are three trends in particular that are fuelling export opportunities: increased "back office" services provided offshore, smartcard technology advances, and the reduction of barriers between public health and hospital systems.

The convergence in health technology applications and professional standards of practice across jurisdictions, along with distance technology, now supports the delivery of specialized assistance to general practitioners and para-professionals regardless of location. Such backup is particularly important in medically under-served communities where health care access and health education are a challenge. In addition, the health care professionals located in more remote communities face isolation from their professional peers, making recruitment and retention challenges more acute.

Consumer health information (CHI) includes information that supports individual and community based health promotion and enhancement, self-care, professional patient decision making, patient education and rehabilitation, and selection of providers or health care institutions. CHI can be made available through health care settings, homes, schools, libraries, worksites, stores and other public forums. The demand for online health information, estimated at over \$21 billion US by the year 2000, will continue to rise as the focus shifts to "wellness" and quality of life. Another important trend is the growth of "Internet broadcasting" companies providing electronic access to a wide range of health and personal information. It is estimated that at least 10 percent of the total World Wide Web content is related to health care.

The health industry has historically invested less in continuing training and

development than other industry sectors. Although entry into many of the professional health fields requires lengthy training, once in practice, many professionals regard more training as unnecessary. This attitude is changing, however, as continuing professional education (CPE) is becoming recognized as a central component of a world class health care system. The global market for CPE is estimated at US\$3.9 billion. As countries expand requirements for mandatory CPE to maintain professional licenses, the number of attractive markets will also grow.

## **Major Markets**

### United States

This market is worth over \$1 trillion US. The primary customers are managed care insurers, Health Maintenance Organizations (HMOs), Preferred Provider Organizations (PPOs), and governments. Within the government, there are a number of potential customers: Medicare (federal), Medicaid (federal/state), county health departments, Veterans Affairs, and the Indian Health Service

The U.S. homecare market for telehealth is estimated at \$16 billion US and is the most rapidly growing segment of that health care market. The US has by far the most sophisticated and widely distributed applications of telehealth in the world. Demographics indicate that by the year 2030, roughly 5 million Americans will be in nursing homes, and the cost for this care will have increased from the current \$70 billion US to nearly \$1 trillion US per annum. In response to this cost pressure, the homecare industry is poised for explosive growth.

With its high literacy rate, focus on health care, managed care environment, high Internet usage, and the fact that over 40 percent of U.S. households have computers in their homes, the U.S. market for Consumer Health Information (CHI) is expanding exponentially. Health care television (using interactive TV - ITV) is predicted to be an important growth segment of the US broadcasting industry, with live interactive session between viewers and health care professionals potentially reaching 30 million consumers by 2000. The U.S. government's vision for CHI is that every individual will be able to access, through computer, ITV, or phone, any health information that he/she needs.

The private sector is beginning to take a leading role in the research, development, and dissemination of CHI. As health care restructuring continues and the information services industry expands, producers of CHI will grow in sophistication and number. The U.S. market is made up of predominantly US competitors, although European providers are beginning to investigate its market potential. The timing is excellent for Canadian CHI providers to move aggressively into the world's largest market for CHI. Privacy and confidentiality issues are critical, as the public must be able to access CHI with the assurance of complete anonymity and confidentiality. In a networked environment, challenges to the maintenance of confidentiality and privacy

may arise. As a large segment of the customer base is made up of government departments, Canadians must be prepared to compete in a government procurement process, and be able to convince the clients that they can provide quality "American" content.

There is growing competition in the U. S. market for management of health care systems, with the large managed care companies competing for market share. The market is dominated by U. S. firms. There are many players offering components of an integrated system, but few, if any, offering the complete package of technology, service, systems integration, training, and management. There are substantial opportunities for Canadian telehealth exporters to offer "total product solutions" which include integrated call centre support, scheduling, billing, telecommunications, and equipment applications.

### Japan

As in North America, Japan is faced with a rapidly aging society. There are exciting opportunities to supply homecare services and technologies to this affluent, technologically sophisticated market. Japan has invested heavily in broadband telecommunications capability; thus, ISDN services are almost universally available throughout the country. By early in the next century, it will be possible to receive telehealth homecare treatment with the same quality of care as face-to-face treatment by using high definition moving pictures through the fibre-to-the-home (FITH) network which is currently being installed.

As of 1998, there were 133 telehealth projects underway in Japan. Given the investment on infrastructure and policy reform, Japan is expected to become a major competitor to Australia within the Asia Pacific region.

Given Japan's demographics, advanced telecommunications, reimbursement policies, centres of specialized medical expertise and need for and interest in telehealth, it represents an ideal market for homecare telehealth applications. There is also opportunity to use Japan as a base for further expansion into the Asia Pacific Region, through the broadband networks that have been established throughout the region.

The Nippon Telegraph and Telephone Corporation (NTT) is a major player in the telehealth marketplace. With the recent changes in reimbursement policies, it is expected that private sector competition will increase dramatically.

There are few market access issues for the provision of home care services in Japan. Medical licensing is done on a national basis, avoiding the cross state licensure problems faced by the U. S. A. and Canada. Provision of services and information in Japanese is critical.

Canadian telehealth firms must act immediately if they want to succeed in penetrating the Japanese market. The keys to success are undertaking joint ventures with

telecommunications providers, health care institutions, and/or other Canadian suppliers active in Asian markets. If Canadian companies are exploring the Japanese market at this stage, they will benefit greatly as the market grows.

The European Union The United Kingdom (U.K.)

The U.K. government has increased its public spending on health care from (sterling) 1.2 billion to (sterling) 1.7 billion, with a total National Health Service (NHS) budget of (sterling) 2 billion. The European market for video conferencing equipment is estimated by Feedback Research Services to be \$120 million US in 1997, and expected to grow to \$400 million US by 2000.

The U.K. National Health Service is developing a telehealth network to provide coverage to the entire country, called the NHS-wide Network. British Telecom (BT) won 90 percent of this tender, with its portion being called BT HealthNet. The project's goal is to link all teaching hospitals to GP practices, dentists, and pharmacists within a secure, variable bandwidth intranet. One of the major focuses of the initiative is continuing professional education for health professionals. Eighty percent of all GP's practices are already computerized and most of these have also been linked to their administrative centres (for billing) and the hospitals. Applications for NHS still need to be developed, and there are excellent opportunities for Canadian CPE providers to supply the content and systems to support CPE.

The government is the largest funder of CPE services. Infrastructure providers, such as BT and Mercury, are also in the market for telehealth applications and would be potential customers for Canadian exporters. There is strong competition in the U.K. telehealth CPE market. There are few barriers to market access in the U.K. CPE market. Information on accreditation and licensing can be obtained through the Royal College of Physicians and Surgeons.

The EU Market. Germany

Many market opportunities exist for Canadian companies in all areas of telehealth. Some of the major growth areas are: Electronic Patient Record(EPR)/Smart Cards, Hospital Information Systems (HIS), tele-training, tele-emergency services, and community health and surveillance.

There are already 73 million health care cards in Germany, however the existing cards have to be replaced by newer ones. Canadian companies have to provide better technology, better two-way readers, and/or more secure information to penetrate this market. Opportunities exist in the HIS market because computer system compatibility has to be developed and older systems have to be updated. The markets for tele-training, tele-emergency services and community health and surveillance are immature and thus must be developed. Technology is required to develop and integrate the systems.

The government in Germany is searching for less expensive forms of health care delivery, citizens want more information on preventative health care, health services have to be improved in remote locations, and health care providers need fast, up-to-date information. These factors are driving the development of telehealth in Germany, and Canadian companies can use their strengths in this area to aid in this development.

#### Opportunities for Canadian Firms

Telehealth in Canada is an infant sector, which has the potential for dramatic growth, both in Canada and in international markets. In Canada, while telehealth services accounted for \$330 million in sales in 1996, current rapid market expansion makes it likely that sales could reach \$1 billion by the year 2000. Currently, 50 percent of Canadian firms export, and with strategic positioning of telehealth companies, sales could be increased to \$3 billion within 5 years, of which 70 percent would be exports. This would create 4000 new knowledge-based jobs and 100 new establishments.

Dramatic changes are occurring in health care: an aging population, better informed and more demanding consumers, and increasing requirements to provide health care in the community and in the home. In Canada, there is a strong desire to maintain universal access to publicly funded health care, while private sector sourcing of health services is growing under the imperatives of cost driven health reforms.

Telehealth has the potential to improve access to health services, quality of care, and the efficiency of the health care sector which would lead to significant cost savings. A strong partnership between the health care sector, the telecommunications sector and the information technologies sector, all knowledge-based industries, will be the catalyst for the development of new products, applications and services leading to new businesses and jobs in a vibrant Canadian telehealth industry.

#### Industry Advantages

Canadian telehealth companies are well positioned to capture domestic and international opportunities, particularly in niche markets. These include applications in: telecardiology, teleradiology, telepathology, home telecare (including diagnostics and monitoring), medical imaging, and consumer health information. Canada's international reputation for excellence in health care and telecommunications, as well as experience in distance delivery, has positioned the Canadian telehealth industry for export success. Provided domestic barriers to growth are addressed, Canada has the potential to capture 10 percent of key world telehealth markets by the year 2005.

#### Strategic Government Support

Health or "life science" industries represent a key knowledge-based sector that is

a strategic driver in the global economy. Capturing its market potential and profiting from it is primarily the responsibility of private companies. But governments have an important role to play in creating a favorable business climate at home, in managing the Canadian regulatory regime, and in supporting international business development. Financial and policy support provided by governments is critical to the growth of Canada's health industries. Support mechanisms include the funding of basic research, ensuring a steady supply of highly trained human resources, and providing financial assistance for research infrastructure, start-ups and innovation. Governments' sharing of risk is especially important where market entry is difficult and costly, as it is in the highly-regulated health industries sector.

Improving access to world markets is an important role for the federal government. The implementation of the North American Free Trade Agreement and agreements under the World Trade Organization, as well as the Free Trade Agreement of the Americas under negotiation, have contributed to significant reductions in tariffs. However many non-tariff barriers still exist.

Examples of federal government involvement in trade development and promotion include:

- Supporting Canadian subsidiaries in the pharmaceutical industry who seek world product mandates and access to world-scale distribution systems;
- Identifying opportunities for generic drug manufacturers to perform contract manufacturing;
- Assisting small and medium-sized Canadian medical device and services companies, as well as generic drug manufacturers, to develop international marketing skills and partnerships/alliances that will improve their ability to penetrate foreign markets;
- Providing firms with up-to-date information on the opportunities and challenges that exist in external markets.

The federal government also plays a very important role by pursuing the harmonization of regulations, since these impact directly on the international competitiveness of Canada's health industries. Canada is currently negotiating with Japan, Europe, Australia and the United States on a common set of regulatory standards for medical equipment. Global harmonization will serve to support the eventual development of Mutual Recognition Agreements between member countries which will facilitate market access and increase global trade cooperation. As a result Canadian medical device companies will better be able to compete in the international marketplace without suffering the financial losses associated with long delays for regulatory approval.

Provincial governments also have an important role to play in international business development in the health industries sector. Their procurement policies often

determine "first market" or "first use" of new products and services. Many provincial governments have active research and development programs, and support research infrastructure. Provincial industrial development programs have been used to promote "clusters" of health industries activities, e.g. biopharmaceuticals in Quebec. Many provincial governments (e.g. Ontario, Manitoba and Nova Scotia) are strong supporters of export initiatives. All provincial governments are represented on Trade Team Canada Health Industries. \*

#### Looking to the Future

Canadian-based life sciences industries companies bring unique comparative advantages and competitive values to the international marketplace. Promoting these companies as global healthkeepers, which are positioned to meet the challenges of the 21st century, is the underlying theme that drives Canada's international business strategy.

\* Credit: Content for this Industry Overview was extracted from the Strategis Industry Canada Web-site.