The Ontario Health Care Labour Market: Opportunities for Internationally Trained Physicians

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2.0 The Ontario Biotechnology Labour Market

Sources:

- Biotechnology in Canada -A Regional View: February 2004 Life Sciences Branch Industry Canada
- 2004 Canadian Biotechnology Human Resources Study Biotechnology Human Resource Council (CBHRS)
- Biotech Canada: State of the Industry 2004
- "Stepping Up": Report of the Expert Panel on Skills, Advisory Council on Science and Technology (ACST)
- The Biopharmaceutical Industry: Overview, Prospects and Competitiveness Challenges, 2001, Industry Canada

2.1 Industry Overview:

There is no single or simple description of the biotechnology industry. It is not an industry in the usual sense. Biotechnology, as its name implies, is an enabling group of technologies that can be applied across a wide variety of industrial and commercial processes. It has important applications in industries related to human health, such as diagnostics and pharmaceuticals, as well as to agriculture and food, forestry, environment and energy. biology and health.

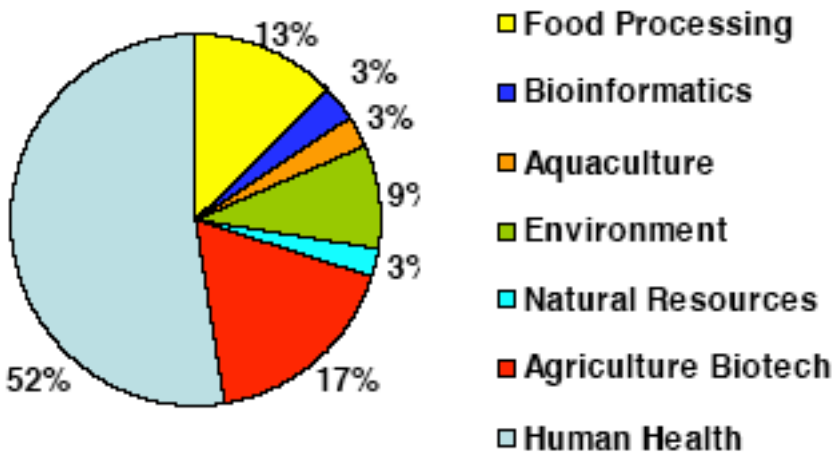
A wide variety of private and public sector players are involved in the biotechnology sector, including companies, governments, research institutes, hospitals, universities and technical colleges. The sector is heavily focused on therapeutics and diagnostics for human health.

Biotechology in Ontario:

- 3,346 employed (28% of Canada)
- in 101 biotech companies
- $1,376M in biotech revenues
- employment down 0.5% in 2004

The majority (70-80%) of Ontario's biotechnology employees work in the health care sector.

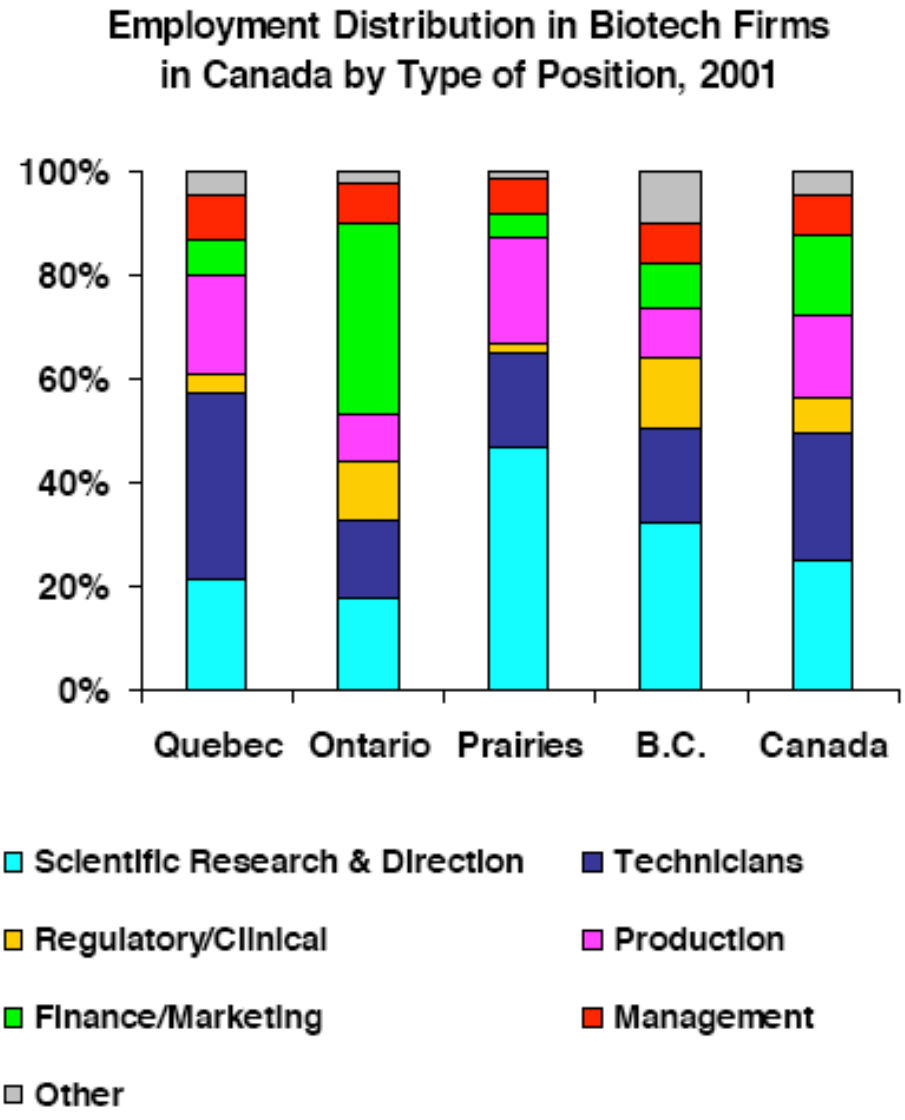
Number of Firms by Sector



Career paths in biotechnology generally include:

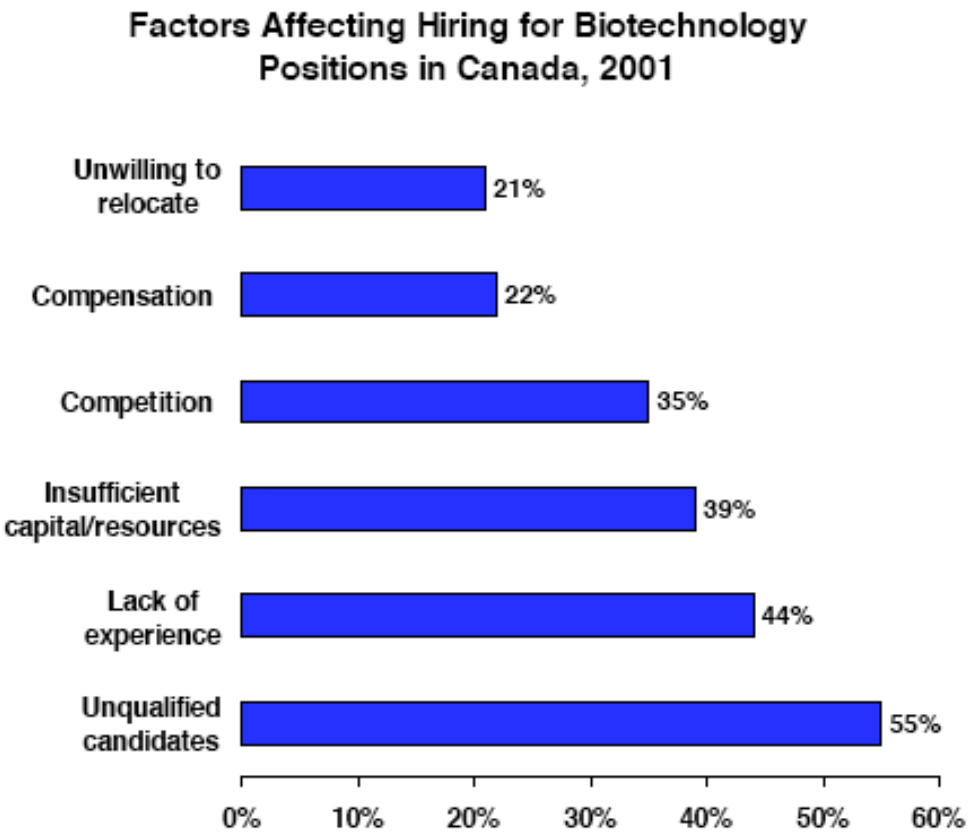
- Sales and marketing
- Quality control assurance
- Administration and regulation
- Clinical research
- Manufacturing and field work
- Research and development

"Skill-intensive" positions (scientific research/direction and technicians) make up the bulk of biotech employment in Canada, with 52% in 1999 and 49% in 2001. Ontario has the largest portion of its workforce in finance and marketing positions, a sign of its growing maturity.



2.2 Biotech Recruitment

- The top recruitment sources for biotech positions are universities and newspapers/journals.
- 91% of firms in Canada are successful at recruiting biotech employees



2.3 Biotechnology HR Issues And Challenges

(Source: 2004 CBHRS)

The majority of firms in Canadian biotechnology are very small. Technology, financing and basic survival tend to be the issues highest on the corporate agenda.

HR concerns tend to be secondary although firms want access to "job-ready" employees who can grow and adapt with the company.

In addition:

- qualified managers,
- intellectual property experts and
- regulatory affairs specialists

were all deemed to be in short supply.

Management Talent – The Canadian biotechnology industry needs experienced managers that can guide company growth and move products through the commercialization process to the marketplace. Managers of smaller firms need a mix of skills. They have to manage technology, find funding and develop alliances and deals that are required to achieve commercial success. In addition, they need all the skills required to run what is initially a small business that will likely grow rapidly. Companies have had to import individuals with the required skills and expertise mix from the larger pool in the US. This shortage of qualified people is impacting the growth of Canadian biotechnology.

Attracting Top Talent – When companies recruit from abroad they encounter an expensive and uncertain recruitment process, high salary levels, immigration requirements, taxation issues and the fundamental problem of finding qualified people. Governments, hospitals and universities view themselves as less competitive than the industry as a whole in attracting personnel. This may be due to a lack of financial resources to pay competitive salaries and to purchase leading-edge equipment and advanced laboratory technology that attracts top R & D talent. However, working for these organizations has advantages beyond compensation. For example, hospitals, institutes and governments provide greater employment security than can be offered in smaller companies.

Employee Training and Development – Information collected for the study shows that Canada's educational institutions are now more responsive to the needs of the biotechnology sector than in the past. For example, several universities now offer undergraduate courses and graduate programs oriented towards biotechnology. However, in keeping with the notion that **small firms want "job-ready" candidates**, educators still need to blend scientific and technical training with basic business skills and related areas such as intellectual property and regulatory affairs. Educational institutions have been successful in tracking emerging industry needs. Despite commendable efforts, firms continue to feel that more could be done in training "job-ready" candidates.

2.4 Biotechnology Sector Opportunities

(Source: 2004 CBHRS)

Survey respondents were asked to predict the demand for biotechnology workers in their organization in the next three to five years in three areas:

- biotechnology research activities,
- product development and production,
- and commercialization and marketing.

Over half indicated that they believe that the demand for the following workers will be high or very high:

- Senior management;
- Business development and capital financing;
- Research managers;
- Ph.D. staff; and
- Research technicians.

Human health companies rate the need for senior management and regulatory affairs highest whereas the agriculture biotechnology respondents rate technicians and Ph.D. staff highest.

National survey respondents provided information on unfilled full-time biotechnology-related positions the company had, why they were unfilled and where they were targeting recruitment for these positions. Categories and positions proposed included:

- biotechnology
- research (technicians, M.Sc. staff, Ph.D. staff, research managers, other);
- biotechnology product development and production (production or purification scale up, licensing professionals, regulators/clinical affairs, quality control/assurance, informatics,
- management or supervisors, other);
- and biotechnology commercialization and marketing (business development and capital financing, marketing professionals, sales staff, finance, marketing and sales alliance managers, management, senior management, other).

Reasons For Vacancies

When looking at the reasons why these positions were unfilled, companies were most likely to cite:

- Lack of candidates with required experience;
- Compensation required is too high to match;
- Lack of candidates with both required training and experience; and
- Competition from other sectors

Although half of the interviewees from organizations using emerging technologies said that they are not experiencing a shortage of scientific and technical staff today, all anticipate a shortage in the near future. In particular, as the biotechnology industry matures, some interviewees talked about an impending shortage of skilled senior scientists who will be able to guide their organization towards commercialization. As many areas of emerging technologies (e.g. proteomics, genomics, bioinformatics) are still in relatively early stages of development, the challenge will be to find individuals who can bridge the science and business world to bring these technologies to commercialization.

Interviewees were asked to predict how the competencies for scientists and technical personnel will change as the biotechnology industry evolves. A number noted that there will be a need to expand existing skills in order to keep up with rapidly changing technologies. This will need to be complemented by a more in-depth understanding of the field that they are in, as well as an appreciation of related disciplines. It was noted that science and technology professionals will need to adapt to the business world in order to understand business principles and how they impact on a company's scientific decisions.

Training:

The biotechnology community was viewed as being supportive of non-traditional approaches to training and exposure, such as allowing on-site tours and exposure to hands-on laboratory work. As such, many educational institutions have successfully implemented co-op and internship programs despite potential intellectual property sensitivities.

Providing co-op placements, internships and mentorship opportunities for students was viewed as a valuable role for industry and one that will continue to be key in developing future biotechnology employees.

(ACST):

The "Stepping Up" report found no current evidence of a generalized and persistent shortage of technical skills in the biotech industry. On the whole, Canada's education and training providers and immigration system appear to be keeping up with the demands of Canadian employers for technically skilled people. Indeed, in some highly specialized and advanced fields of study, Canadian universities are producing more graduates than Canadian firms currently can absorb. Nevertheless they note, that some firms are already incurring difficulties recruiting and retaining the technically skilled workers they need in a number of niche areas. These challenges will grow and become more generalized in the coming years. In biotechnology, due to rapid growth or the requirement for extremely specialized skills, some firms may find it very difficult to fill positions with fully qualified people.

However, based on reports from industry executives, at the moment most firms are coping adequately with these difficulties, which are not inconsistent with the normal ebb and flow of dynamic labour markets.

In sharp contrast with the technical skills picture, but equally critical to the competitive success of

Canadian industry, is a persistent shortage of people who combine strong technical abilities with essential skills (e.g. communications and teamwork) and management skills (e.g. cost control and budgeting). In all five sectors, executives reported that finding technically competent people who can work in teams, communicate effectively and apply their technical knowledge to real world business problems, is a significant challenge.

2.5 Skill-set Requirements

The industry has a wide range of skill requirements, including entry-level and senior researchers, technicians, engineers, scientists and management, as well as experts in areas as diverse as intellectual property, quality assurance, informatics and marketing. The characteristics of the biotechnology industry, therefore, pose unique HR challenges. The development of emerging technologies requires new skills – often immediately. As many companies move through their life cycle, they require new technical, management and leadership skills not needed at earlier stages. The rapid growth of the industry means that these skills required by companies at mid and later stages of development are in short supply. Similarly, as products move to commercialization, skills are needed in companies and public sector bodies in areas such as regulatory and legal affairs. In short, the competitive, international and rapidly changing nature of this industry is resulting in demand for a wide variety of skills.

Finding talent with the necessary management skills and strategic alliance experience was hindering their firms' ability to meet corporate objectives (see following table). Another top issue identified as a challenge was attracting people with regulatory skills. The third most frequently cited challenge was attracting people with direct commercial
application of research skills.

TABLE 5: FACTORS AFFECTING ACHIEVEMENT OF CORPORATE OBJECTIVES

THE CHALLENGE OF _____ IS HAVING A NEGATIVE IMPACT ON THE ABILITY OF MY COMPANY TO ACHIEVE ITS OBJECTIVES. (N=60)

CHALLENGE	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	Do Not Know
ATTRACTING PEOPLE WITH MANAGEMENT SKILLS	18%	38%	29%	13%	3%	–
ATTRACTING PEOPLE WITH STRATEGIC ALLIANCE EXPERIENCE	11%	37%	37%	14%	2%	–
ATTRACTING PEOPLE WITH REGULATORY SKILLS	19%	26%	40%	11%	2%	2%
ATTRACTING PEOPLE WITH DIRECT COMMERCIAL APPLICATION OF RESEARCH	13%	32%	36%	13%	–	7%
ATTRACTING PEOPLE WITH MERGER EXPERIENCE	11%	30%	40%	10%	2%	8%
ATTRACTING PEOPLE WITH SCIENTIFIC SKILLS	14%	24%	29%	21%	11%	2%
ACCESSING A QUALIFIED LABOUR SUPPLY	13%	24%	33%	24%	6%	–
ATTRACTING PEOPLE WITH TECHNICAL SKILLS	13%	24%	27%	27%	10%	–
ATTRACTING PEOPLE IN QA/QC	5%	21%	49%	18%	2%	5%
ATTRACTING PEOPLE IN PRODUCTION	6%	18%	52%	11%	2%	11%
ATTRACTING PEOPLE IN INTELLECTUAL PROPERTY	3%	19%	54%	11%	3%	10%
ATTRACTING PEOPLE IN MARKETING	5%	15%	40%	26%	7%	8%
ATTRACTING PEOPLE IN FINANCE	6%	8%	35%	41%	8%	2%

2.6 Human Resource Planning for the Future

HR was considered as a top (important or very important) issue by about one-third of respondents. Biotechnology firms, particularly smaller, research-intensive firms face a number of challenges that typically include financing, intellectual property, or development issues – issues likely to demand immediate attention. Given that many biotech firms are operating in “survival” mode, it is not surprising that HR issues are under-rated. HR issues tend to flare up when key staff members leave or when expansion of a critical corporate function is required. At that point, specific HR challenges and needs arise and more attention is given to them. Based on the overall study, all respondents agreed that the performance of their organization depends on the actual performance of employees; thus HR remains a substantial core issue.

Emerging technology firms, which tend to be smaller in size, indicated that senior management have the prime responsibility for recruiting, retaining and developing people. It was also indicated that senior management plays a lead role in identifying key talent internally and developing succession plans. An alternative approach noted was contracting with a qualified HR professional to develop specific policies and procedures and to develop and/or improve the company’s HR framework. A number of emerging technology interviewees indicated that their organizations were responding to the anticipated future HR challenges by developing targeted strategies, while others have taken a “wait and see” attitude.