



CEO Survey of Leading Canadian Biotechnology Healthcare Companies July, 2003

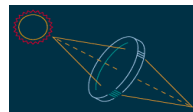
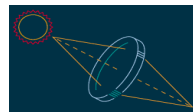


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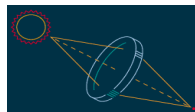
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CEO Survey

Introduction:

This document represents the findings from a series of interviews with CEOs, or senior executive team members, of a broad range of Canadian biotechnology healthcare companies. In total 35 companies participated. The criteria for selection was somewhat subjective but focused on securing the opinions of a representative group of companies (public, private, large, small, geographically dispersed, therapeutic focused, device/diagnostics, genomics/proteomics, etc.) Telephone interviews were then conducted which ranged in length from 30 to 90 minutes during the months of April and May 2003. The data and comments were then synthesized by the survey authors and reviewed by the survey's advisory board.

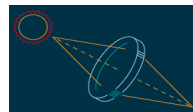


CEO Survey

Background

During discussions conducted by Egon Zehnder International with CEOs of leading Canadian biotech healthcare companies, investors, and other key stakeholders it became clear that several issues continue to prevent this sector from reaching its full potential. Specifically, our discussions identified several common “hot buttons”:

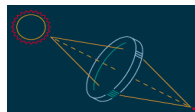
- raising capital
- recruiting and retaining talent
- appropriately compensating executives
- securing regulatory approval
- establishing effective corporate governance



CEO Survey

Objectives

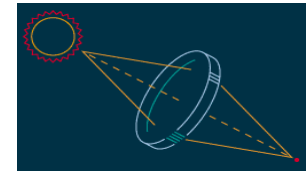
To help address these issues, Egon Zehnder International assembled an advisory board of leading players in the biotechnology healthcare sector including BIOTECanada, the Biotechnology Human Resource Council and the RBC Financial Group to assist in conducting a survey with a representative mix of CEOs of leading firms. The goal has been to identify key concerns, create a network to dialogue these issues and to surface recommendations that, if implemented, will foster more rapid, healthy, and profitable growth in Canada's biotechnology healthcare sector.



CEO Survey

Survey Author:

**Egon
Zehnder
International**

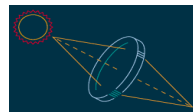


Egon Zehnder International:

With roughly 300 consultants and 60 offices in 40 countries, Egon Zehnder International is a global leader in senior-level executive search, management and board appraisal, and board of director searches across all industry sectors. The development of the survey, the CEO interviews, the synthesis of the responses and the writing of the draft report was the responsibility of Egon Zehnder International.

For further information regarding Egon Zehnder International

Visit our website @ www.zehnder.com



CEO Survey

Advisory Group:

Biotechnology Human Resources Council

The BHRC designs, distributes and promotes programs and services of value to Canada's biotechnology industry for attracting, developing and retaining a highly-skilled Canadian workforce essential for its sustainable growth and international competitiveness. The BHRC ...

- helps Canadian companies develop the qualified staff necessary for commercial success.
- facilitates industry involvement in skills training and upgrading for employees.
- helps the Canadian biotechnology sector strategically manage its workforce with human resource tools and HR intelligence services.
- facilitates the entry of new workers to the biotech sector through the communication of job opportunities to a broad audience.

Visit our website @ www.bhrc.ca



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Advisory Group:



BIOTECCanada:

BIOTECCanada is the national organization dedicated to promoting a better understanding of biotechnology and the many ways it contributes to improving the quality of life of all Canadians. Biotechnology is broadly defined as the use of living organisms (plants, animals and microorganisms) to develop and improve products. BIOTECCanada represents Canadian health care, agricultural, food, research and other organizations that are involved in biotechnology.

BIOTECCanada also offers a range of services to its members.

Visit our website @ www.biotech.ca



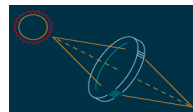
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Advisory Group:



RBC Financial Group

Royal Bank of Canada (RBC), RBC Financial Group is Canada's largest financial institution as measured by market capitalization and assets, and one of North America's leading diversified financial services companies. RBC Royal Bank's Knowledge-Based Industries (KBI) Group is Canada's premier provider of financial services to the life sciences sector.

Visit our website @ www.rbc.com



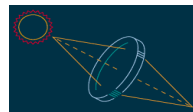
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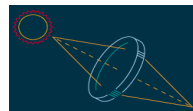
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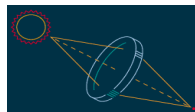
Key Messages

- The immediate concern of Canadian biotechnology healthcare CEOs is raising capital. Nearly 30% of those interviewed highlighted this as their most significant obstacle to success in 2003.
- Additionally, acquiring and retaining experienced executives, especially in the scientific areas (research and development, clinical trials, medical affairs) and in business development is also seen as a key to success moving forward.
- Gaining regulatory approval is also a major preoccupation of CEO's. Roughly 70% of those asked, had significant issues with the key regulators in the US, Canada and Europe.
- Similarly, continued success in each stage of the clinical trial process, often for a single drug candidate, will dictate the long term success of many of these organizations.
- To help address these issues, many CEOs are looking to establish partnerships with organizations such as Pharmaceutical firms to help both navigate the regulatory process as well as secure access to additional funds should there be scientific setbacks.



Key Messages - Continued

- However, to many individuals in this sector none of the previous statements is a surprise. On the contrary, many of these problems or issues are similar to those that have been identified since the late 1990s in numerous reports.
- Perhaps what is most frustrating to many CEOs in the biotechnology healthcare sector is that very little has been done to address these issues despite the fact that they believe many plausible solutions have been suggested and successfully implemented in various regions, but not on a Canada-wide basis.
- Should many of these issues not be addressed in the near term, many CEOs believe Canada's biotechnology healthcare sector will face a significant shakeout.

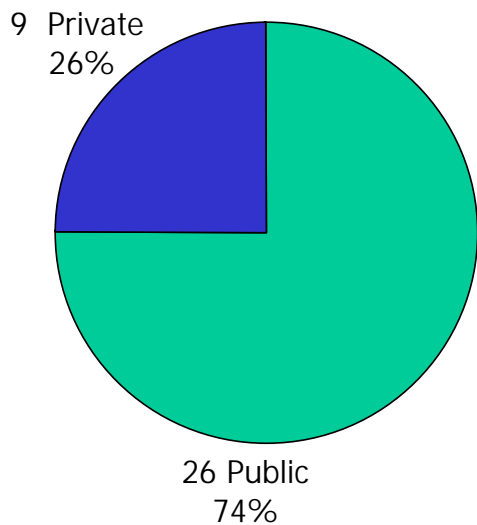


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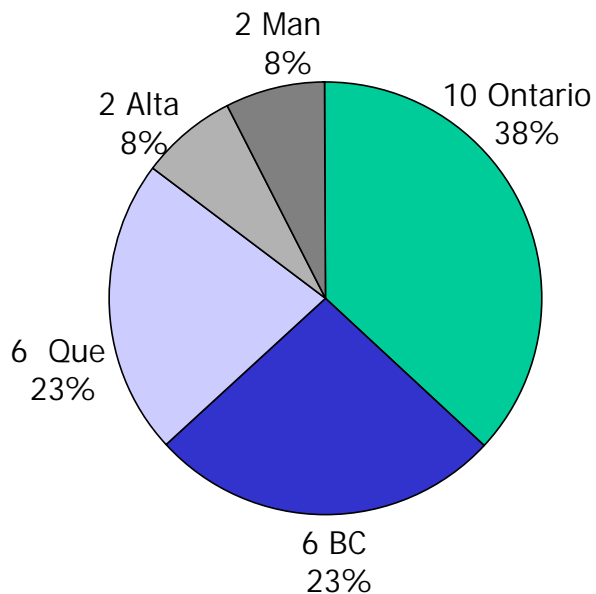
Overview of Participants

The survey participants represent a mixture of public and private companies, largely from the three key biotechnology regions of Ontario, Quebec and British Columbia.

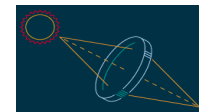
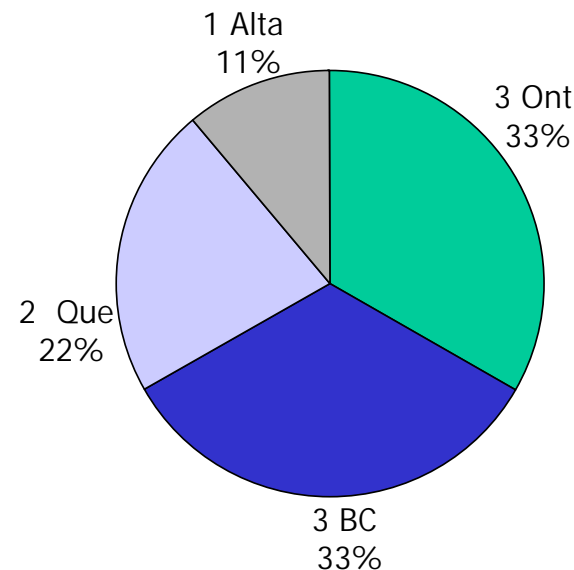
Public vs. Private
100% = 35



Public
100% = 26



Private
100% = 9

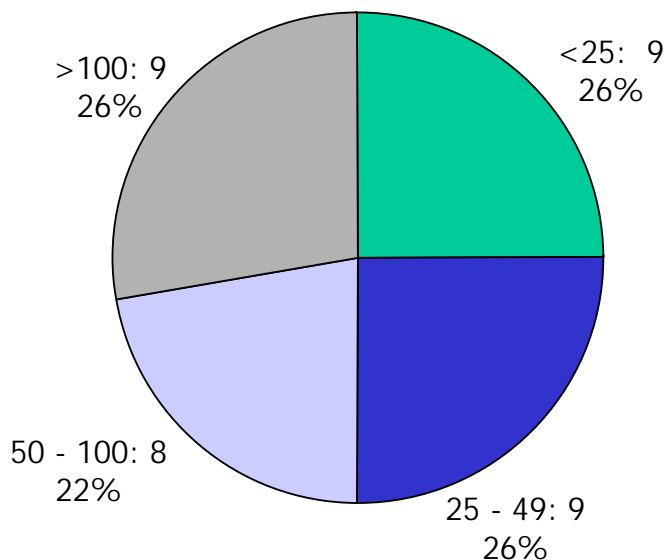


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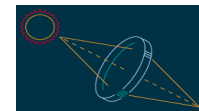
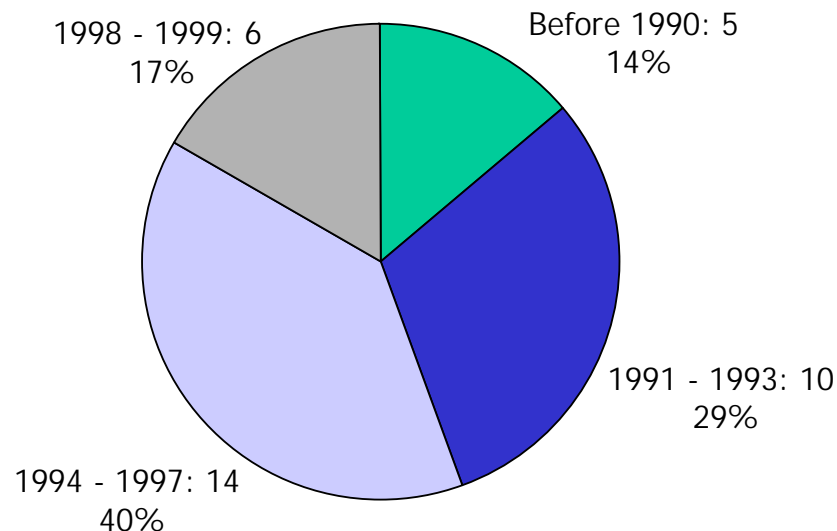
Overview of Participants

Participants also represent a diverse mix in terms of number of employees and years of operation.

Companies by Number of Employees
100% = 35



Companies by Date Established
100% = 35



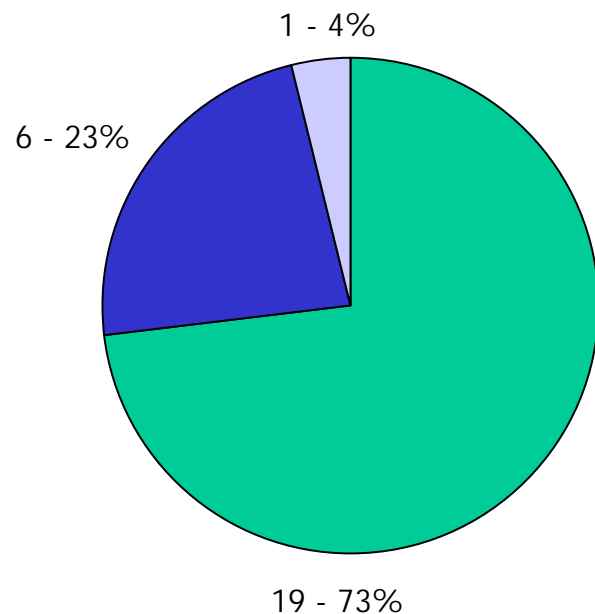
CEO Survey

Overview of Participants

The majority of companies surveyed are actively involved in the development and commercialization of therapeutics (69%), followed by diagnostics/devices (20%) and genomics/proteomics (11%).

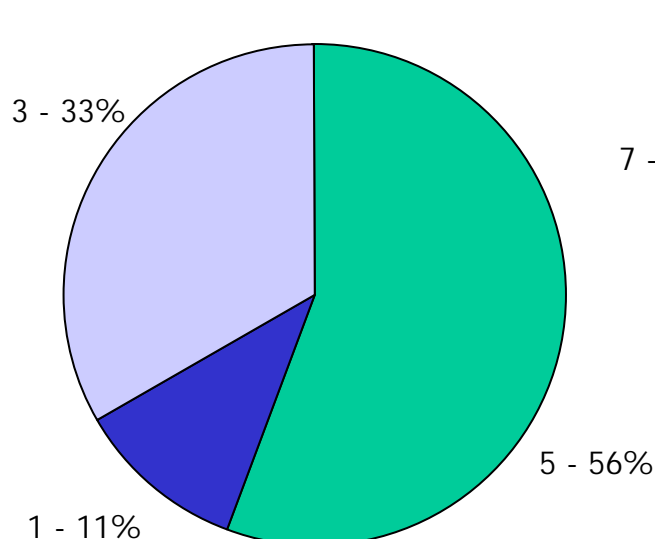
Public Companies by Sector

100% = 26



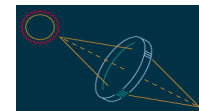
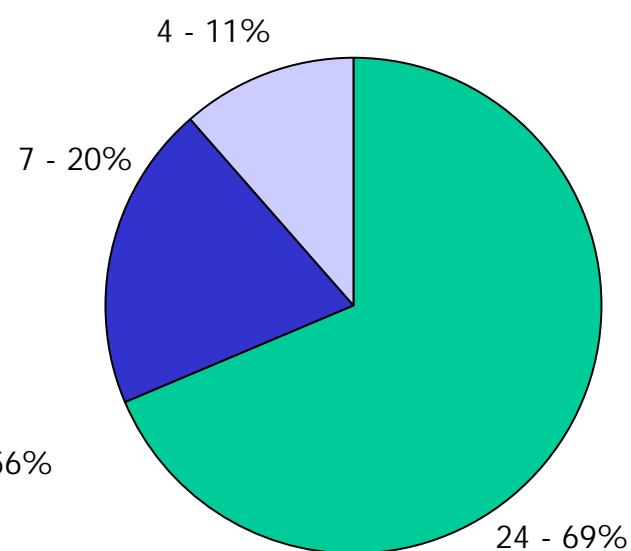
Private Companies by Sector

100% = 9



Total Companies by Sector

100% = 35

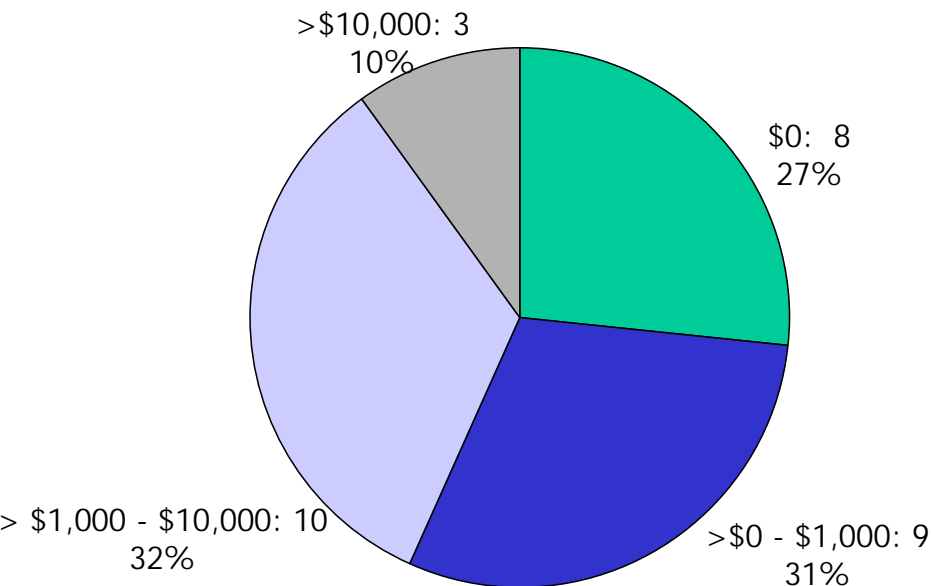


CEO Survey

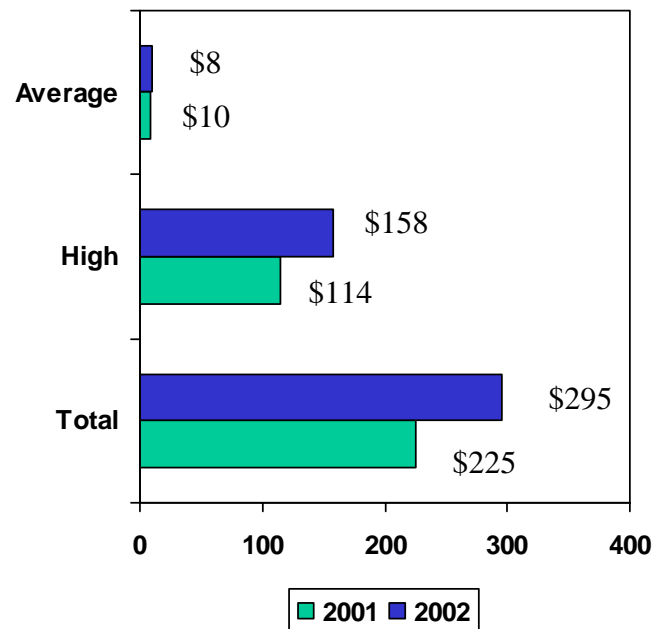
Overview of Participants

90% of those surveyed led companies that generated less than \$10 million in revenues in 2002, with 27% earning no revenue whatsoever. However, collectively those surveyed generated roughly 30% more revenue in 2002 than in 2001.

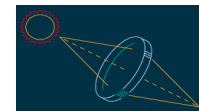
Companies by 2002 Revenues
 \$Thousands: # of Firms 100% = 30*



Comparison of 2001 vs. 2002 Revenues \$Millions



* ^ Some participants elected not to provide information because they were private companies or subsidiaries of international parents.

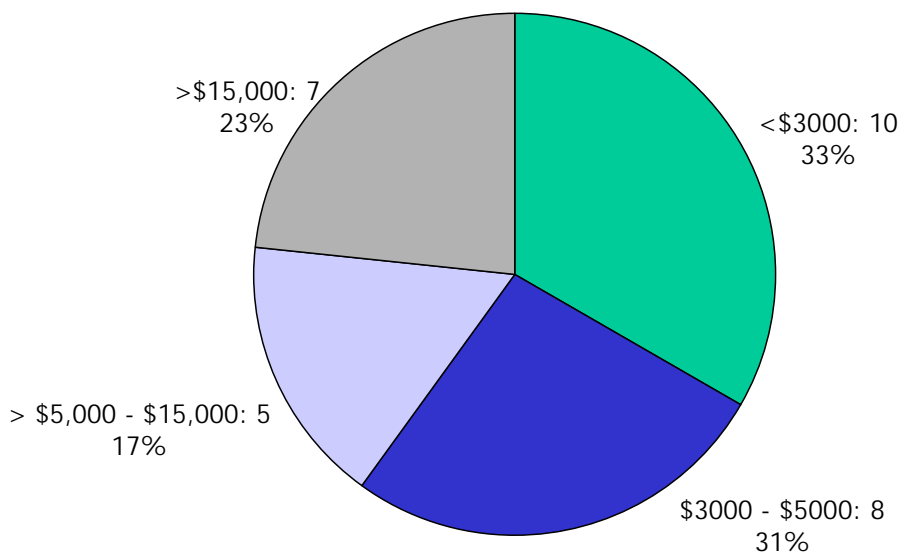


CEO Survey

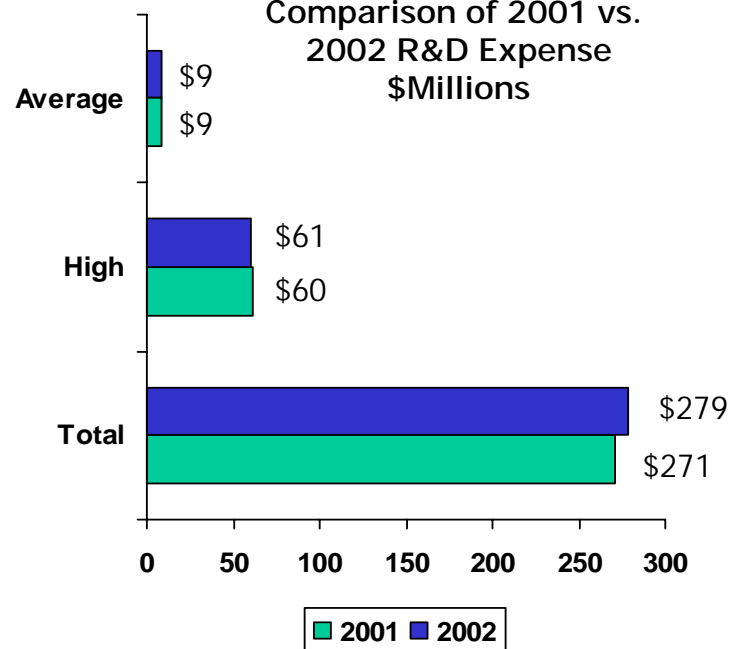
Overview of Participants

Nearly 80% of respondents invested less than \$15 million in Research and Development in 2002, while collectively investment was nearly identical to 2001.

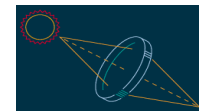
Companies by 2002 R&D Expense
\$Thousands 100% = 30*



Comparison of 2001 vs. 2002 R&D Expense
\$Millions



* ^ Some participants elected not to provide information because they were private companies or subsidiaries of international parents.

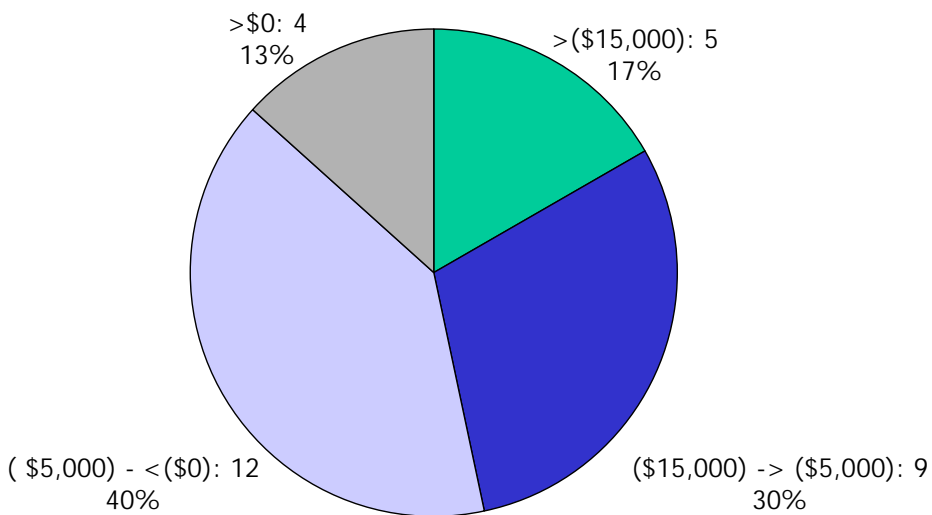


CEO Survey

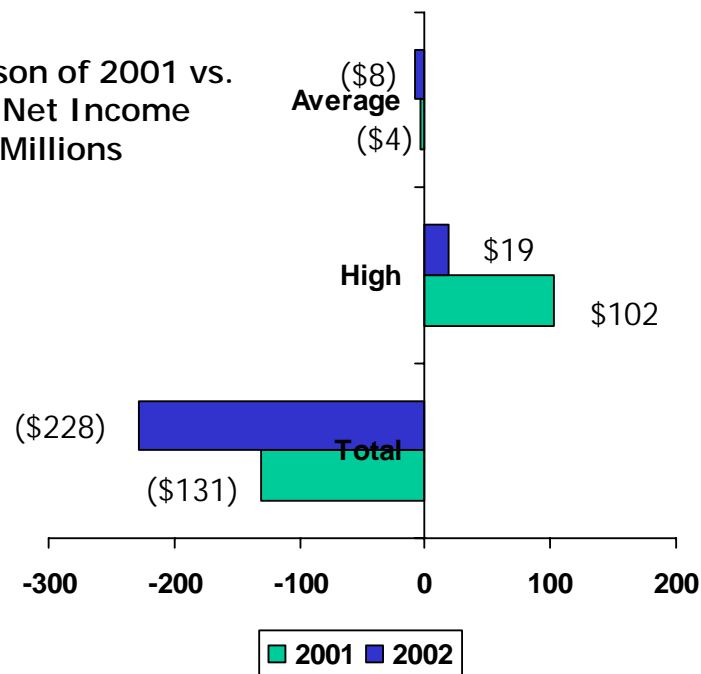
Overview of Participants

Nearly 90% of companies surveyed lost money in 2002. Additionally, the average loss in 2002 was nearly double that of 2001.

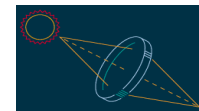
Companies by 2002 Net Income
\$Thousands 100% = 30*



Comparison of 2001 vs.
2002 Net Income
\$Millions



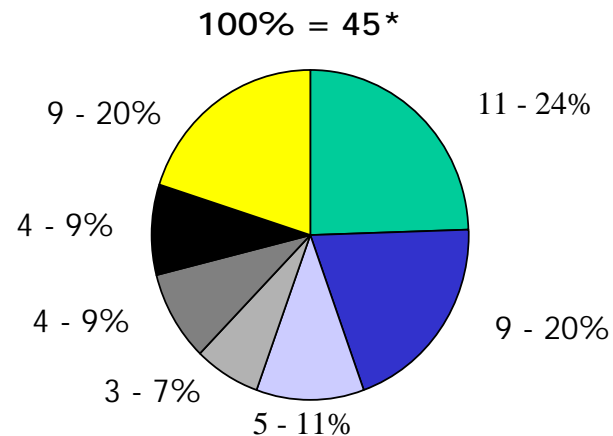
* ^ Some participants elected not to provide information because they were private companies or subsidiaries of international parents.



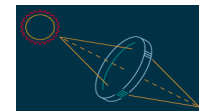
CEO Survey

Raising Capital - Issues

While the two leading impediments to raising capital were identified as a lack of sophisticated Canadian investors (25%) and market conditions (21%), 20% of respondents stated they had no significant issues in raising capital.



* Some respondents identified more than one factor as the key impediment



Raising Capital – Issues (Continued)

What is the most significant impediment to raising capital?

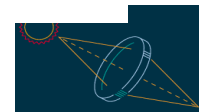
CEO Comments:

"Canadian VCs and other investors don't have the scientific sophistication to conduct the level of due diligence they need to decide on whether to invest or the pools of capital to take you through to commercialization."

"The Canadian industry is the biggest obstacle. We have had some spectacular failures that have hurt us all."

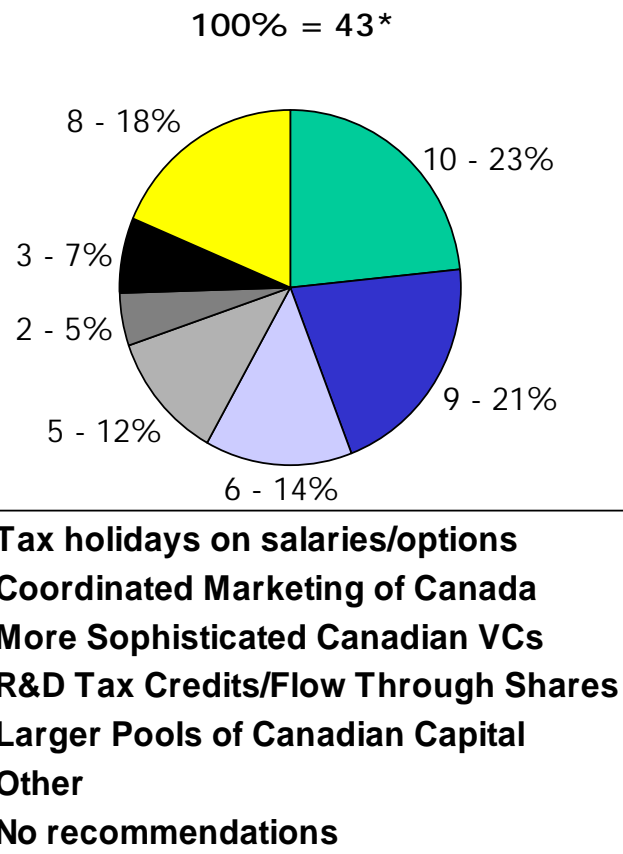
"We don't have Canadian VCs who are really recognized in the US and can make introductions."

"Since coming up to Canada I've come to realize that the investors and analysts are just not as sophisticated as US investors. Given that there is also a limited pool of capital, it is a tremendous challenge. That is especially so because US investors have more than enough opportunities in their own backyard and don't need to look north."

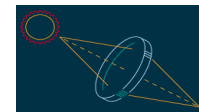


Raising Capital - Solutions

Providing more aggressive tax holidays on salaries and options (23%), such as done in Quebec, and having a coordinated marketing effort to support Canada's biotechnology healthcare sector (21%) are seen as keys to helping raise capital.



* Some respondents identified more than one solution to the key impediments



Raising Capital – Solutions (Continued)

What could be done to help Canadian companies raise capital?

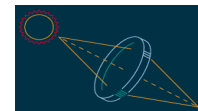
CEO Comments:

"It would be great if Canadian investors could tap into some kind of shared resource to do sophisticated due diligence. Then I think they would be prepared to be much more involved in biotech."

"I would love to see a couple of major international VCs open offices in Canada. We also need some big successes to raise more interest about what we have up here."

"More changes to how biotech companies are taxed. We need national standards for how key talent and R&D expenditures are handled."

"We need to collectively promote Canada much more effectively in Europe and the US as a great place to invest in Biotech companies."



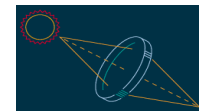
CEO Survey

Recruiting Talent

The two key methods of recruiting executive team members to biotechnology healthcare companies are leveraging personal networks (45%) and engaging executive search firms (23%).

Position	Number Surveyed	Founder	Personal Network	Executive Search	Investors	Advertisements	Other	Total
President/Chief Executive Officer	35	43%	31%	11%	9%		6%	100%
Chief Financial Officer	28	11%	46%	29%			14%	100%
Head of Business Development	17	6%	59%	24%			11%	100%
Chief Operating Officer	11	9%	64%	18%			9%	100%
Head of R&D	18		69%	19%			12%	100%
Chief Science Officer	14	43%	36%	14%			7%	100%
Head of Sales	6			25%			75%	100%
Head of Clinical Affairs	8	13%	25%	38%		13%	11%	100%
Head of Regulatory Affairs	5		20%	40%			40%	100%
Head of Medical Affairs	5		60%	40%				100%
General Counsel	4		100%					100%
Head of Manufacturing	4		75%	25%				100%
Head of Human Resources	4			25%		50%	25%	100%
Head of Marketing	2		40%	60%				100%
Total #	161	27	73	37	3	3	18	161
% of Total	100%	17%	45%	23%	2%	2%	11%	100%

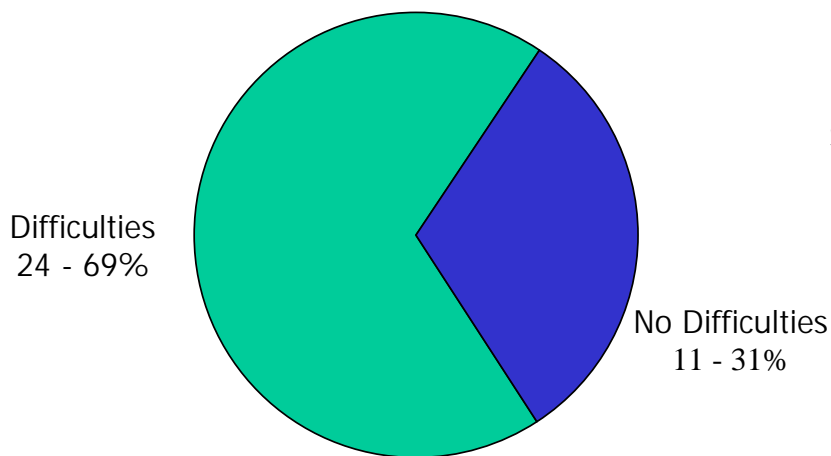
Note: Includes only those titles that exist on the executive teams of the companies surveyed. Total number surveyed differs from those who provided compensation figures as some private companies elected only to share recruiting information and not compensation information.



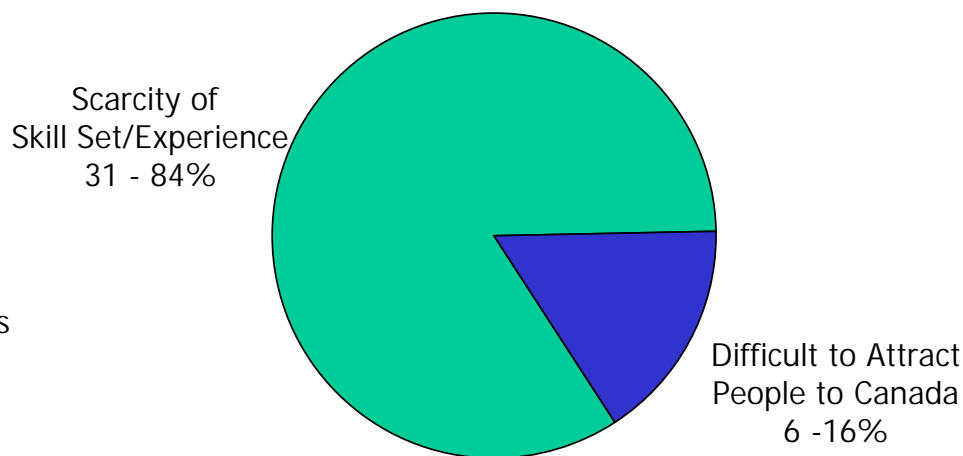
Recruiting Talent - Issues

Nearly 70% of those surveyed stated they have had significant difficulties in attracting one or more senior executives to join their organizations. The two key reasons highlighted were scarcity of the required skill set/experience (71%) and attracting people to Canada from the U.S. or Europe (19%).

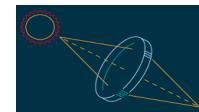
Difficulty in Attracting Executive Level Talent 100% = 35



Key Reason for Difficulty in Attracting Executive Level Talent 100% = 37*



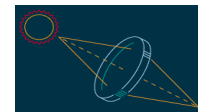
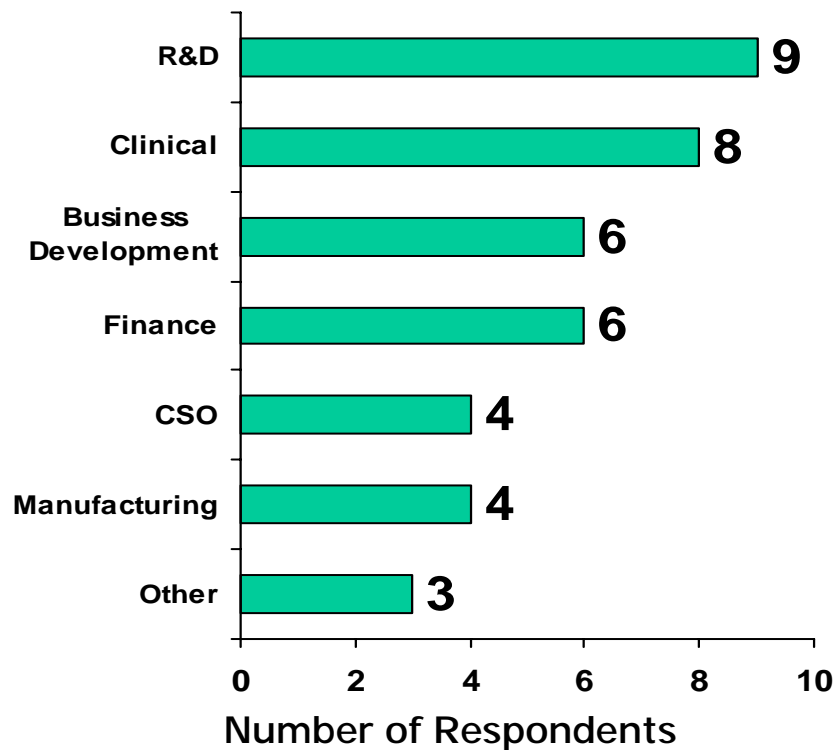
* Some of those who stated they had difficulties attracting talent sighted more than one reason for the problem.



Recruiting Talent - Issues:

Of those CEOs having difficulty attracting key talent, the functions identified as most difficult to fill included several scientific/technical roles as well as business development.

Most Difficult Senior Positions to Fill



Recruiting Talent - Issues: (Continued)

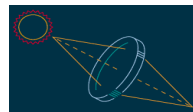
Why have you had difficulty attracting executives to your organization?

CEO Comments:

"There is just a lack of this skill set (R&D, Clinical Development, Chief Scientific Officer) in Canada. The VCs in the U.S. find the best and don't let go of them. They just move them to their next company as the original company gets close to commercialization."

"It is very hard to find someone who not only has a PhD in microbiology but also has a track record of real sales and deals."

"Our industry is primarily concentrated in California so attracting someone who is talented to come to Montreal was a very tough sell."



CEO Survey

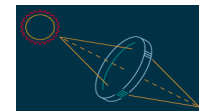
Executive Compensation

A comparison of the highest and lowest cash compensation of members of the executive team of the organization surveyed, highlighted some vast differences.

Canadian Dollars (\$000)

Position	Number Surveyed	Highest Paid			Low est Paid		
		Base	Bonus %	Total Cash	Base	Bonus %	Total Cash
President/Chief Executive Officer	32	\$ 636	45%	\$ 922	\$ 26	30%	\$ 34
Chief Financial Officer	27	\$ 356	38%	\$ 491	\$ 65	10%	\$ 72
Head of Business Development	14	\$ 357	25%	\$ 446	\$ 110	0%	\$ 110
Chief Operating Officer	13	\$ 486	25%	\$ 608	\$ 75	10%	\$ 83
Head of R&D	13	\$ 250	30%	\$ 325	\$ 82	0%	\$ 82
Chief Science Officer	12	\$ 300	40%	\$ 420	\$ 100	10%	\$ 110
Head of Sales	6	\$ 264	20%	\$ 317	\$ 130	10%	\$ 143
Head of Clinical Affairs	6	\$ 260	20%	\$ 312	\$ 110	15%	\$ 127
Head of Regulatory Affairs	5	\$ 235	25%	\$ 294	\$ 95	10%	\$ 105
Head of Medical Affairs	4	\$ 351	50%	\$ 527	\$ 118	10%	\$ 130
General Council	4	\$ 500	25%	\$ 625	\$ 130	20%	\$ 156
Head of Manufacturing	4	\$ 180	30%	\$ 234	\$ 95	0%	\$ 95
Head of Human Resources	4	\$ 180	40%	\$ 252	\$ 70	0%	\$ 70
Head of Marketing	3	\$ 140	20%	\$ 168	\$ 125	0%	\$ 125
Total/Average	147	\$ 321	31%	\$ 424	\$ 95	9%	\$ 103

Note: Total number surveyed differs from total firms surveyed as some private firms and subsidiaries elected not to share compensation information.



CEO Survey

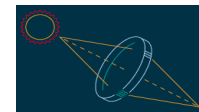
Executive Compensation

On average, total cash compensation for executives ranged from just over \$150,000 to nearly \$370,000 for Chief Executive Officers. Additionally the overwhelming majority of executives received equity and/or options in 2002.

Canadian Dollars (\$000)

Position	Number Surveyed	Average			% w with equity/ options
		Base	Bonus %	Total Cash	
President/Chief Executive Officer	32	\$ 272	35%	\$ 367	72%
Chief Financial Officer	27	\$ 163	26%	\$ 205	78%
Head of Business Development	14	\$ 168	23%	\$ 207	79%
Chief Operating Officer	13	\$ 201	22%	\$ 245	77%
Head of R&D	13	\$ 170	32%	\$ 224	62%
Chief Science Officer	12	\$ 178	23%	\$ 219	75%
Head of Sales	6	\$ 189	27%	\$ 240	100%
Head of Clinical Affairs	6	\$ 189	23%	\$ 232	100%
Head of Regulatory Affairs	5	\$ 167	21%	\$ 202	100%
Head of Medical Affairs	4	\$ 213	25%	\$ 266	75%
General Counsel	4	\$ 233	20%	\$ 280	75%
Head of Manufacturing	4	\$ 123	23%	\$ 151	75%
Head of Human Resources	4	\$ 140	33%	\$ 186	50%
Head of Marketing	3	\$ 128	20%	\$ 154	67%
Total/Average	147	\$ 181	25%	\$ 227	77%

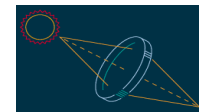
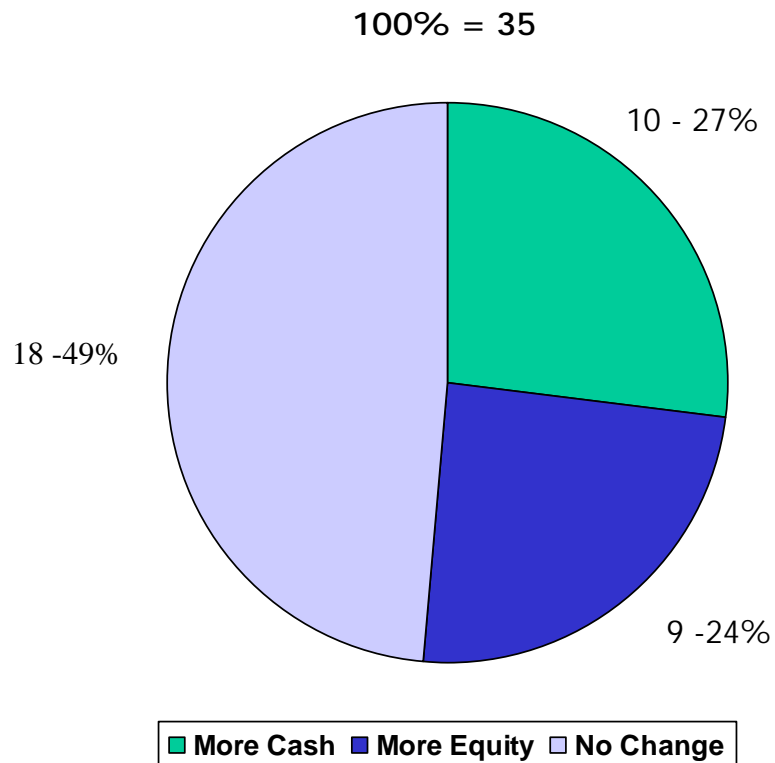
Note: Total number surveyed differs from total firms surveyed as some private firms and subsidiaries elected not to share compensation information.



CEO Survey

Executive Compensation

While a small majority of CEOs have seen a shift in the desire for either more cash or equity in compensation, nearly 50% have seen no change at all.



Executive Compensation (Continued)

Have you seen a shift in executives desire for more cash versus options and/or equity?

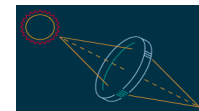
CEO Comments:

"The higher the level of the executive the more they want to have equity because they believe in the company."

"It is more company specific than it ever has been. Senior executives really do their due diligence before joining a company and deciding about equity or options."

"At our size everyone wants equity. They could all go back to their careers in big Pharma where they spent 15 to 20 years but they stay here because they want to create value and participate in what follows."

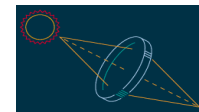
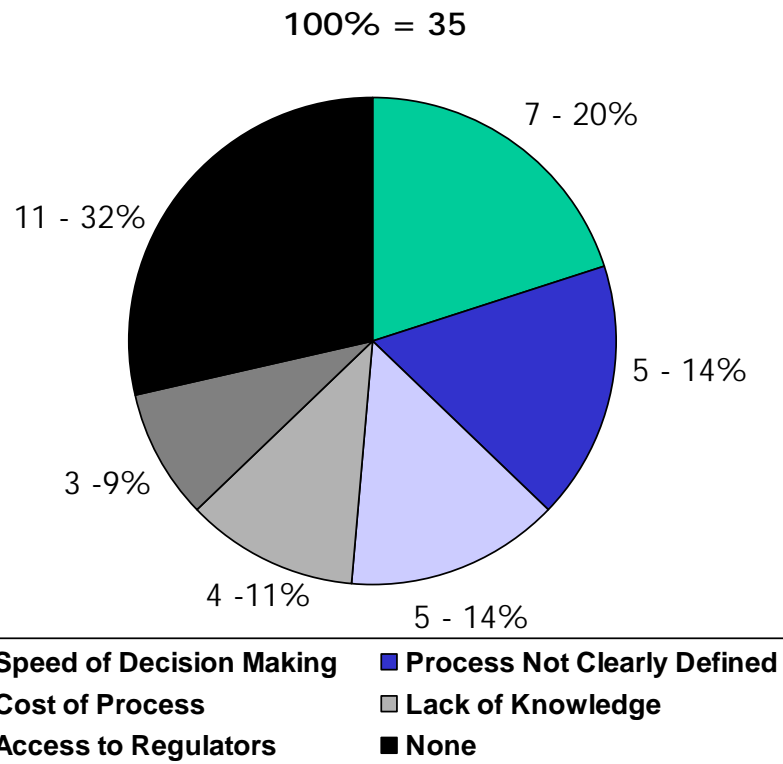
"I think the days of ridiculous stock options are over and I think pay has spiked in North America. Because of what we've seen happen across industries I also think employees don't value stock options as much and frankly that makes the life of the board a lot easier."



CEO Survey

Regulatory Approval - Issues

A major hot button for CEOs continues to be gaining regulatory approval. While 29% stated they had no problems at all 71%, stated they had significant problems in navigating the various regulatory processes in Canada, the U.S. and Europe.



Regulatory Approval – Issues (Continued)

What are your most significant issues with gaining regulatory approval in Canada and elsewhere?

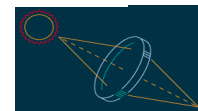
CEO Comments:

"There is no real regulatory expertise in Canada's agencies. They are extremely understaffed and unskilled. They just can't deliver. With the FDA it is much more customer friendly."

"Stupidity of the FDA. We got Canadian approval straightaway and with the FDA it has been a major problem and two years in the making."

"We have had a lot of trouble working effectively with the FDA. We have had to refile three times and they keep asking for more detail."

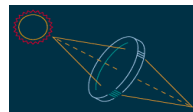
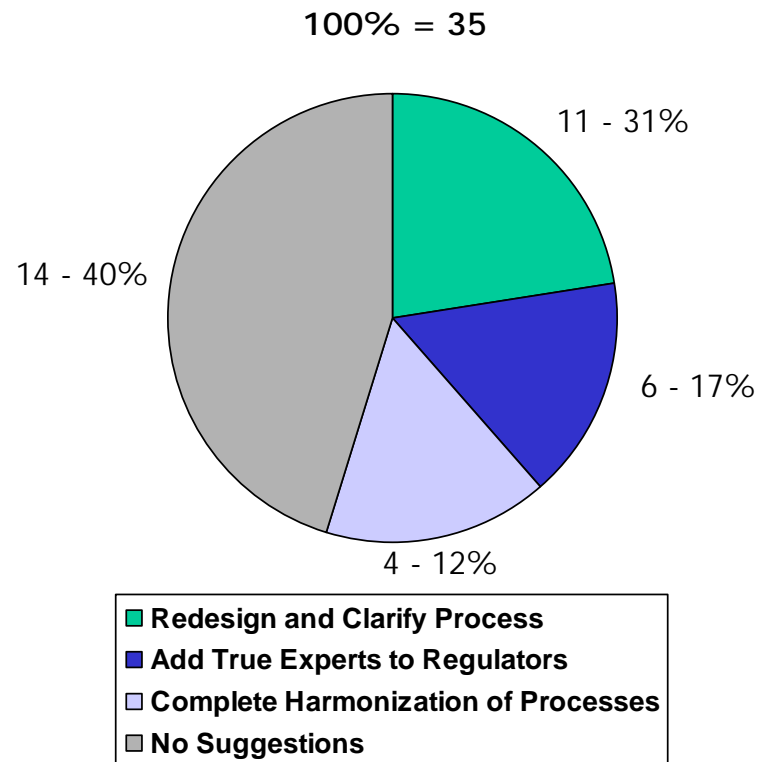
"The biggest issue I see is that the people you start the process with end up shifting onto other files as you are going through the process so you can never really build the relationships you need to really know where you stand."



CEO Survey

Regulatory Approval - Solutions

The majority of those interviewed (60%) had clear recommendations on what should be done to improve the various regulatory approval processes.



Regulatory Approval – Solutions (Continued)

What could be done to improve the regulatory process?

CEO Comments:

"The regulators need to be much more specific about what is needed, and when, to get approval. For certain diseases it is quite clear, for others it is not. They also need to find a way to reduce the delays in giving us feedback on where we stand and what else they need."

"We need to get this global harmonization finished; specifically with the FDA."

"I would sit down with the US and say we do not have the funding to do the kind of review we need to do therefore let us sit on your committees so we can have some influence on policies and harmonize with the US and get rid of the charade here."

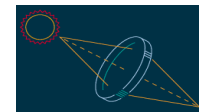
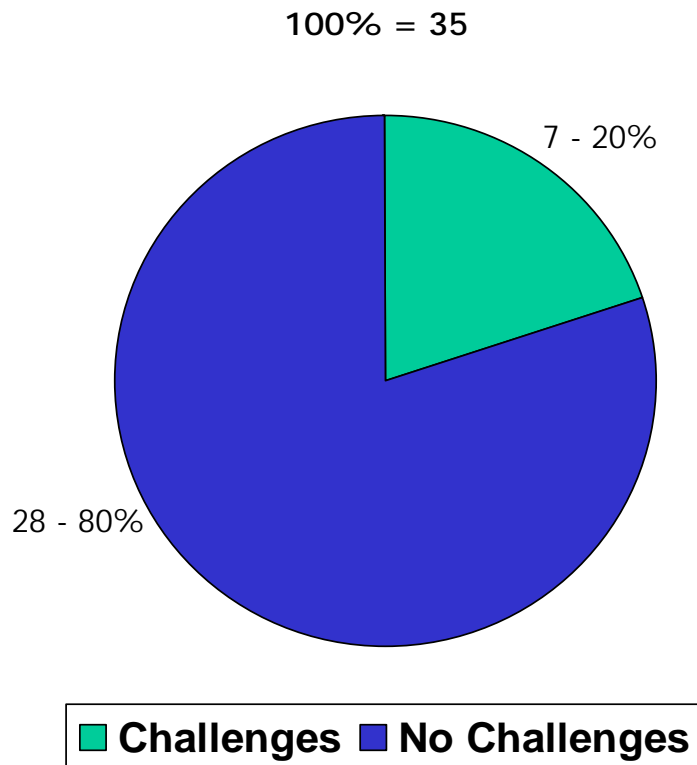
"The regulators need to raise the quality of the people they have in Canada. They just don't have the level of talent that is required."



CEO Survey

Corporate Governance

While corporate governance was expressed as a concern in early discussions with a select group of CEO's, the majority interviewed (80%) believe they have no immediate challenges due to the fact that they have been preparing for new rules and regulations.



Corporate Governance (Continued)

What corporate governance challenges do you face?

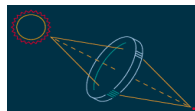
CEO Answers:

"I'm going to have to restructure my board to meet the Sarbanes-Oxley act and US compliance issues."

"I think figuring out how we are going to deal with option packages in light of the Sarbanes-Oxley act is going to be our biggest near term challenge."

"All the changes in Canadian accounting practices have really been challenging for private companies like ours. We now have to use public company standards in the way the handle things like preferred shares. I now have to put these on my balance sheet as debt which impacts my P&L and obscures the reality of how my company is really performing."

"It is much harder to find Directors who know my industry and are solid business people."

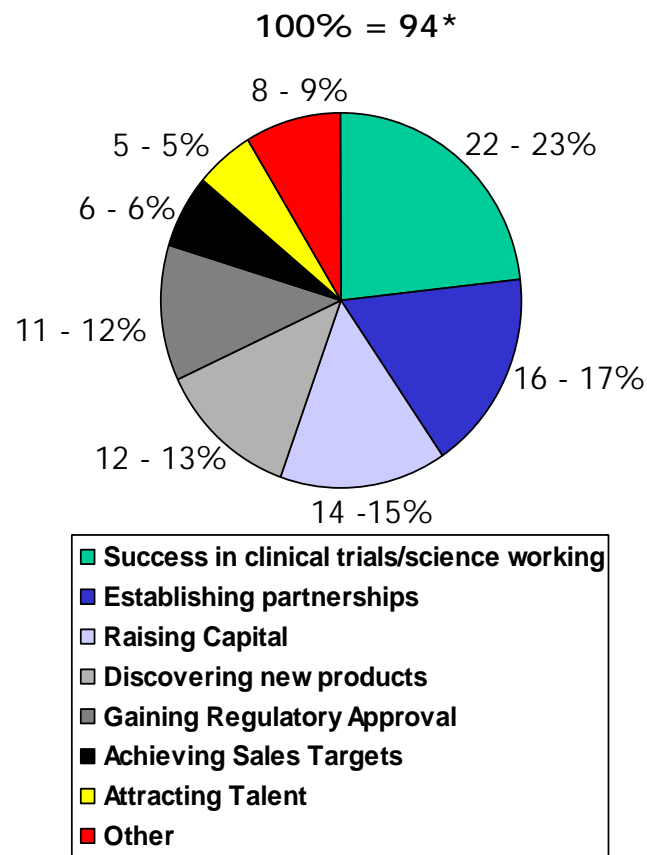


CEO Survey

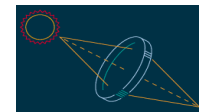
Top Three Objectives For 2003

More than 50% of the CEOs interviewed stated their three top objectives for 2003 stated included:

- having success in clinical trials
- establishing partnerships
- raising capital



* Some respondents had fewer than three primary objectives



Top Three Objectives For 2003 (Continued)

What are your critical objectives for 2003?

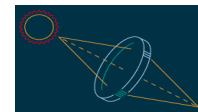
CEO Comments:

"We should be cash flow positive this year but it is going to be tight. I worry about how I'm going to get some more cash in the bank. I just really need our Phase II trials to be positive because it will really raise the profile of our company substantially."

"Getting a financing in the near term is critical for us because it will allow us to do clinical trials next year."

"We really need to find a big Pharma partner for our specific therapeutic. It is critical to moving forward."

"Our primary goal is to move at least one of our compounds into the final stages of pre-clinical work so we can hopefully file a IND shortly."

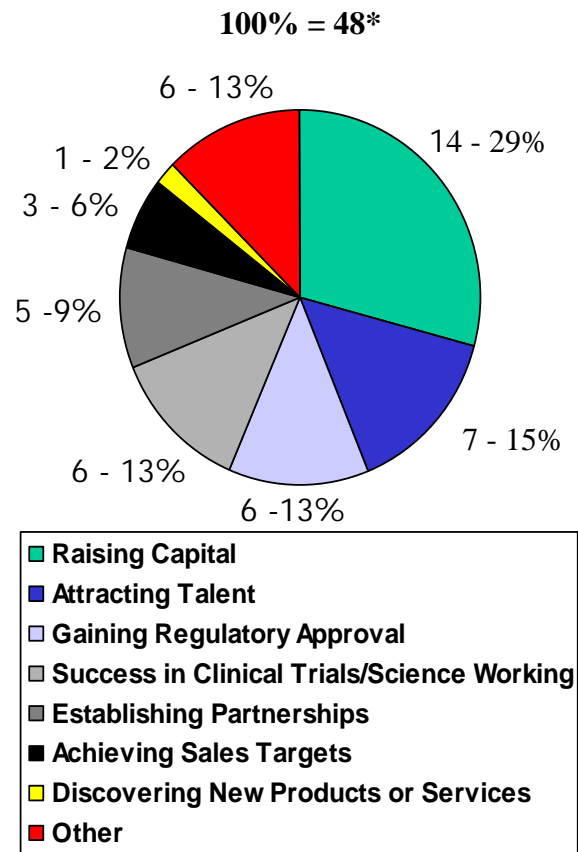


CEO Survey

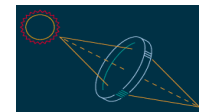
Top Three Challenges For 2003

The majority of those surveyed stated their key obstacles to success are:

- raising capital
- attracting talent
- gaining regulatory approval



* Some respondents had fewer than three primary objectives



Top Three Challenges For 2003 (Continued)

What are your key concerns in 2003?

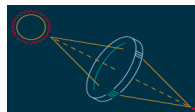
CEO Comments:

"My biggest concern is that I've got two years of cash left. I'm just praying the pre-clinical data comes back positive."

"The only thing that keeps me up at night right now is trying to stretch capital. I've got enough to make it another couple of years but after that I'm in trouble so I'm hoping the markets will turn soon."

"To be successful, we just need to keep building relationships with companies that can help us drive sales of our first product on a global basis."

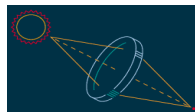
"It is pretty simple. I just need a very positive result from our Phase III trials. If I get that we will be flying. If I don't, I don't actually know what I will do."



CEO Survey

Next Steps

- Egon Zehnder International will share the survey findings with those CEOs who participated and discuss the issues and recommendations raised at a series of CEO breakfasts.
- The BHRC and BIOTECCanada will study the findings of this survey, the additional ideas generated through the breakfast forums, as well as previous and ongoing research both groups have conducted to formulate clear recommendations for helping this sector sustain profitable growth.
- The BHRC and BIOTECCanada will then lobby the appropriate government agencies and stakeholders to adopt these recommendations.



CEO Survey

Appendix

Complete CEO Responses:

- Impediments to raising capital
- Solutions to raising capital
- Difficulties in attracting talent
- Trends in Executive compensation
- Difficulties in gaining regulatory approval
- Solutions to gaining regulatory approval
- Challenges in corporate governance
- Top three objectives for 2003
- Top three impediments for 2003

