

# 2007 ANNUAL REPORT



## Dear Shareholders

Twenty years ago, Aspect Medical Systems took the first step in the development of a simple, clinically effective brain monitoring device that could be used routinely to improve patient care. At the time no one could have guessed the extensive research, development and perseverance that would be required to bring this technology to market. Aspect has prevailed throughout this period as a result of a deep-rooted commitment to advancing the quality and safety of patient care. Our efforts have established the BIS brand as the quality and performance leader in consciousness monitoring and we are pleased with the progress that we made in 2007 to build our leadership position. Today, more than 47,000 BIS systems have been installed worldwide, and in 2007 alone, more than five million patients were BIS monitored.

2007 was an important transition year for Aspect and our financial results reflect the beginning of strategic changes taking effect. Overall product revenue growth slowed to an eight percent rate as we shifted our emphasis in the United States to growing utilization within our existing customer base. The resulting declines in hardware revenue obscured an improving trend in sensor revenue growth during the year, which contributed to an overall improvement in our product margins. International results were even more favorable with sensor growth over 30 percent and overall product revenue growth improving from the prior year.

Operating expenses grew slightly faster than our product revenue, particularly in the first part of the year, due to our new facility costs and expenses related to the conclusion of our Boston Scientific alliance. We continue to make important investments in our sales, marketing and clinical efforts with a goal of further developing our markets and creating revenue growth.

While 2007 was a difficult year for our stock price, we remain confident in our strategy, the extensive clinical data in support of BIS monitoring and the overall stability of the consciousness monitoring business. We have continued to perform well against competition. Moreover, we completed an attractive \$125 million convertible note financing that allowed us to repurchase shares of our common stock held by Boston Scientific and to replenish our cash reserves. In addition, we continued to comfortably manage the investment in our neuroscience program formerly funded by Boston Scientific. Our balance sheet remains strong with almost \$110 million in cash and marketable securities giving us considerable financial resources to continue to invest in and build Aspect.

### ■ Clinical Milestones

In 2007, Aspect's commitment to clinical research and innovation was rewarded with the Cochrane Library's publication of a favorable evidence-based review of the impact of BIS monitoring on anesthesia care. The Cochrane Library is considered one of the world's leading independent sources of reviews of scientific literature.

Aspect's clinical research program also achieved several new important milestones.

- We initiated two long-term outcome studies in collaboration with the Cleveland Clinic to assess the relationship between anesthesia exposure and cancer recurrence and other long term outcomes.
- A study presented at the annual meeting of the American Society of Anesthesiologists (ASA) explored the relationship between depth of consciousness (as measured by BIS) and changes in inflammatory biomarkers after major orthopedic surgery. This study suggests that BIS-guided anesthesia may help moderate the body's inflammatory response to the trauma of surgery.
- Several studies were reported during the year that examined fluctuations in BIS and facial electromyogram, or EMG. These studies reinforced the potential clinical value of using these measures to manage intraoperative patient responses to pain.
- Finally, in the intensive care unit (ICU), a successful prospective randomized study conducted at Duke University examined the impact of BIS monitoring on sedation practices in the neuro ICU. Patients whose sedation was guided to maintain a target BIS range were significantly less likely to experience an adverse undersedation event, such as self-extubation.

## ■ A Spotlight on Anesthesia Safety

In 2007, topics associated with anesthesia safety continued to be in the public eye. In November, the movie "Awake" was released in theaters across the country. While the movie is Hollywood fiction, the problem of anesthesia awareness depicted in the movie remains a reality, and numerous patient accounts continue to attest to the incredible pain and long-term trauma sometimes associated with anesthesia awareness. Fortunately, most anesthesia professionals now accept the view that awareness is a legitimate patient safety concern, and acknowledge the role of brain monitoring in mitigating the risk of awareness. Nonetheless, the issue remains controversial as evidenced by an article and editorial published recently in the *New England Journal of Medicine* that questioned the value of BIS monitoring in reducing risk of awareness.

Despite all of the attention focused on anesthesia awareness, recent research suggests that over-exposure to anesthesia may be an even more important clinical concern with longer-term patient outcomes and safety implications. In March 2007, the United States Food and Drug Administration (FDA) convened an advisory board to review concerns about neurotoxic effects from exposure to anesthetic drugs seen in neonatal animals. Similarly, at the annual meeting of the ASA last October, the keynote speech and much of the discussion centered on emerging scientific evidence regarding the consequences of excessive exposure to anesthetics. These studies suggest that a range of negative outcomes, including seizures, delirium, post-operative cognitive dysfunction, inflammatory response, cancer recurrence and even

mortality, may be associated with overexposure to anesthetic agents. Early research in this area suggests that the patients who are the most vulnerable to excessive exposure to anesthetics are the young, the elderly, and those with significant co-morbidities, such as malignancies and heart disease. Notably, these populations tend to present the greatest challenges to anesthesia professionals. In this context, our continued goal is to help anesthesia professionals individualize anesthesia care – providing not too much, not too little, but just the right amount that each patient needs.

## ■ Market Focus

In 2008, our principal goal is to continue to capture the substantial untapped opportunity in the OR market. We will continue to focus our U.S. sales organization on increasing sensor utilization among existing large customers and to provide these customers with a variety of clinical education resources. Our experience has shown that as clinicians become more comfortable integrating BIS monitoring into their practice through training and education, they tend to use the technology more frequently to achieve its quality and safety benefits. We also intend to maintain a dedicated sales group that sells to integrated delivery networks, or IDNs. Today, many hospitals that comprise the remaining untapped market are members of an IDN where purchasing and policy decisions are set at the network level.

Outside of the U.S., our plan is to continue to expand our sensor distribution channels by collaborating more closely with OEM partners and distributors. In addition, we will support country-by-country initiatives that encourage anesthesia professional societies to consider guidelines that incorporate brain monitoring.

## ■ Product Enhancements and Anesthesia Outcomes Research

Our near and mid-term product development strategy is to offer new products and technological enhancements that address the ways in which anesthesia practices are evolving and changing, and that are designed to give our substantial installed customer base new reasons to use our technology. For example, we expect to introduce a bilateral monitoring system that allows clinicians to track differences in brain function between the right and left sides of the head. We are also initiating additional new studies to further examine how variability in BIS values and facial EMG during surgery may be associated with intraoperative arousal and post-operative pain, with the goal of helping anesthesia professionals track intraoperative analgesic requirements and reduce post operative pain.

The initiation of additional clinical trials to define the value of BIS monitoring on long-term patient outcomes is also a key goal in 2008. Although the final results from studies that examine the role of anesthetic depth on longer-term patient outcomes may not be available for some time, important interim results focusing on process improvements, complications requiring interventions in the recovery

room, delirium and post operative cognitive dysfunction are expected to be reported earlier. We also plan to further investigate the role of BIS technology in optimizing use of intravenous anesthesia. We believe that this research is a necessary response to growing clinical interest in intravenous anesthesia as well as growing concern regarding the long-term consequences associated with anesthesia exposure, particularly of inhaled anesthetics. This research will also explore the impact of integrated BIS information with closed-loop anesthesia delivery systems.

Our continued support of these global clinical studies allows Aspect to collaborate with anesthesia's academic researchers and thought leaders. We believe these thought leaders, in turn, represent the most effective vehicle for educating the next generation of anesthesia providers who are not yet convinced that BIS monitoring should be used routinely.

Finally, we believe that by continuing to demonstrate improved outcomes associated with BIS monitoring, we will be better able to help our customers meet "pay-for-performance" standards that are emerging in the U.S. and parts of Europe. The pay-for-performance approach ties clinician payment to measurable benchmarks of quality and safety outcomes that we believe BIS monitoring can help clinicians achieve.

## ■ Neuroscience Initiatives

Longer term, we continue to be very excited by the potential new product opportunities resulting from our research and development efforts in depression and Alzheimer's disease. Further, we are pleased that we were able to regain full commercial rights to our neuroscience program following the conclusion of our alliance with Boston Scientific.

In depression, our primary clinical studies continue to be focused on developing EEG-based treatment response biomarkers designed to guide clinicians in selecting effective antidepressant medication for the millions of people worldwide who suffer from depression. It typically takes several weeks before the efficacy of a specific antidepressant can be determined, and patients may undergo several trial and error drug regimens or abandon treatment before finding relief.

In 2007, Aspect completed the BRITE Major Depression study ("Biomarkers for Rapid Identification of Treatment Efficacy"), which was conducted at nine leading academic centers across the United States. The study was designed to demonstrate the ability of Aspect's technology to predict an individual's response to antidepressant treatment after only one week of medication.

Last December, we announced positive results of the BRITE study, which demonstrated that Aspect's depression biomarker served as a reliable predictor of both response and remission to antidepressant therapy. The study also suggested that treatment guided with Aspect's technology may lead to better patient outcomes by individualizing medication decisions earlier in the treatment process.

Following the successful completion of the BRITE trial, our focus in 2008 is the planning and execution of a pivotal study called the RAPID trial (Rapid Assessment for Prediction of Improvement in Depression).

The objective of the RAPID trial, which we intend to initiate in Q2 2008, is to prospectively validate Aspect's biomarker as a predictor of antidepressant treatment response.

In addition to seeking to help healthcare professionals guide pharmaceutical-based treatments for depression, we are also exploring the role of brain monitoring in optimizing device-based therapies – particularly neurostimulation approaches – for depression and other neuro-psychiatric conditions. Based on our experience to date, we believe that our biomarker technology could be valuable in the optimization of neurostimulation treatment for neuropsychiatric conditions, and is well-positioned to contribute significantly to the trend toward personalized medicine for the benefit of patients, clinicians and payers alike. We plan to continue to explore this area in 2008.

The opportunity to enable clinicians to improve care for patients suffering from Alzheimer's disease is also significant. Four and a half million people in the U.S. are living with Alzheimer's and 400,000 new cases are diagnosed each year. Aspect will continue to follow patients in two major longitudinal trials to evaluate our EEG-based measure of cognitive function. The first study, the Cape Cod Memory study, has enrolled nearly 400 healthy elderly subjects to investigate EEG measures of cognitive function and predictors of future cognitive decline. The second study is designed to follow 80 subjects with Mild Cognitive Impairment (MCI) over a two year period. This study is now almost fully enrolled and we plan to review the data over the next two years to investigate if our EEG metric can distinguish MCI subjects who experience decline from those whose cognitive status remains stable during the study period.

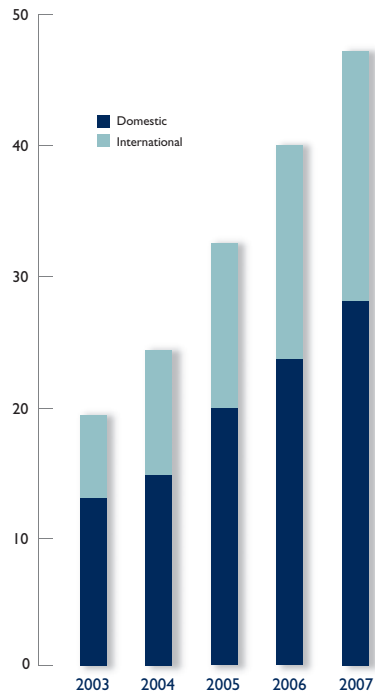
In summary, a wealth of exciting research and product development initiatives are underway at Aspect. Looking forward, Aspect will continue to be guided by an innovative spirit to seek new opportunities, improve patient care, reinforce our industry-leading position and expand our knowledge-base, technology and partnerships – all while striving to create long-term value for our shareholders. This spirit has guided us through the trials and triumphs of our first 20 years, and I'm confident that it will continue to guide us to serve patients, providers and shareholders well in the future. I'm looking forward to the road ahead, and thank you for your continued support.

Sincerely,

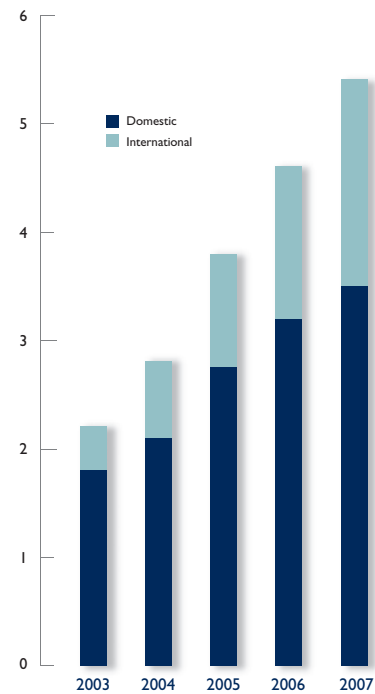


Nassib G. Chamoun  
President, CEO and Founder

**Total Installed Base of Monitors and Modules  
(in thousands)**

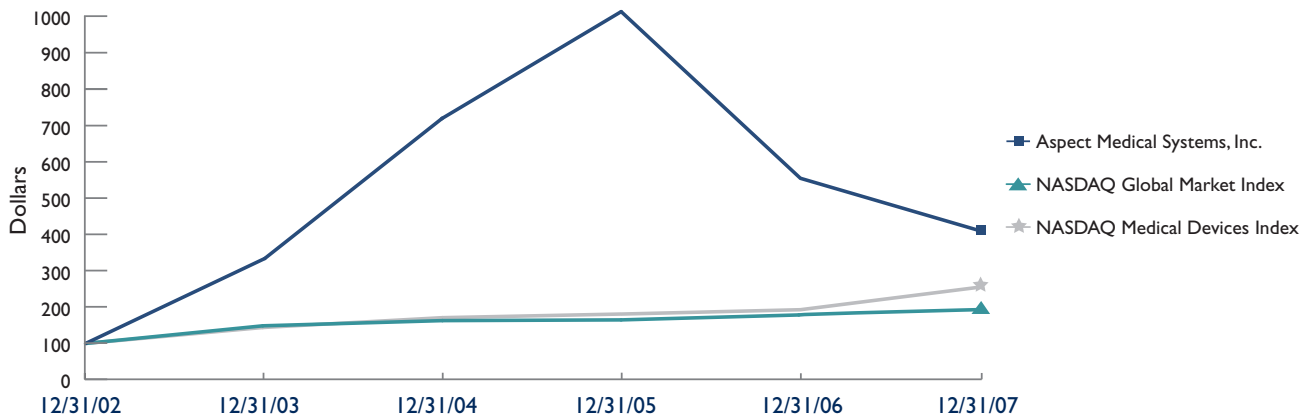


**Sensor Shipment Total – Domestic & International  
(in millions)**



**Comparative Stock Performance Graph**

The comparative stock performance graph below compares the cumulative total stockholder return (assuming reinvestment of dividends, if any) from investing \$100 on December 31, 2002 and plotted at the end of the last trading day of the fiscal years ended December 31, 2003, 2004, 2005, 2006 and 2007, in each of (i) our common stock, (ii) the NASDAQ Global Market Index of U.S. Companies and (iii) an index of surgical, medical and dental instruments and supplies companies listed on the NASDAQ Global Market.



Measurement Period (Fiscal Year Covered)	Aspect Medical Systems, Inc.	NASDAQ Global Market Index	NASDAQ Medical Devices Index
12/31/02	\$ 100.00	\$ 100.00	\$ 100.00
12/31/03	\$ 337.20	\$ 149.50	\$ 146.10
12/31/04	\$ 721.50	\$ 162.70	\$ 170.80
12/31/05	\$1,013.30	\$ 166.20	\$ 188.30
12/31/06	\$ 554.90	\$ 182.60	\$ 199.20
12/31/07	\$ 413.00	\$ 198.00	\$ 255.40

## Financial Information

### SELECTED CONSOLIDATED FINANCIAL DATA

#### CONSOLIDATED STATEMENTS OF OPERATIONS DATA (in thousands, except per share data):

YEAR ENDED DECEMBER 31,	2007	2006	2005	2004	2003
Product revenue	\$ 92,078	\$ 85,018	\$ 73,471	\$ 54,902	\$ 43,476
Strategic alliance revenue	5,246	6,316	3,524	662	615
Total revenue	97,324	91,334	76,995	55,564	44,091
Costs of product revenue	23,319	22,171	19,303	12,992	10,898
Gross margin	74,005	69,163	57,692	42,572	33,193
Gross profit margin percentage	76.0%	75.7%	74.9%	76.6%	75.3%
Operating expenses:					
Research and development	16,052	15,280	10,464	7,470	7,287
Sales and marketing	39,823	35,571	30,298	26,695	25,241
General and administrative	15,486	12,446	10,291	8,946	7,833
Total operating expenses	71,361	63,297	51,053	43,111	40,361
Income (loss) from operations	2,644	5,866	6,639	(539)	(7,168)
Interest income, net	3,009	3,332	1,926	923	725
Income (loss) before taxes	5,653	9,198	8,565	384	(6,443)
Provision (benefit) for income taxes	3,397	(27,891)	90	81	80
Net income (loss)	<u>\$ 2,256</u>	<u>\$ 37,089</u>	<u>\$ 8,475</u>	<u>\$ 303</u>	<u>\$ (6,523)</u>
Net income (loss) per share:					
Basic	\$ 0.12	\$ 1.66	\$ 0.39	\$ 0.02	\$ (0.34)
Diluted	\$ 0.11	\$ 1.59	\$ 0.35	\$ 0.01	\$ (0.34)
Weighted average shares used in computing net income (loss) per share:					
Basic	19,614	22,378	21,508	20,142	19,413
Diluted	20,247	23,380	23,921	22,286	19,413

#### CONSOLIDATED BALANCE SHEET DATA (in thousands):

AS OF DECEMBER 31,	2007	2006	2005	2004	2003
Cash, cash equivalents, restricted cash and marketable securities	\$ 109,484	\$ 63,470	\$ 61,341	\$ 43,734	\$ 33,776
Working capital <sup>(1)</sup>	118,824	70,645	64,853	41,814	29,904
Total assets	173,477	125,254	87,132	61,690	47,740
Long-term debt	125,000	—	—	186	525
Total stockholders' equity	36,675	109,248	67,423	45,586	30,968

<sup>(1)</sup> Certain working capital amounts in the above table have been corrected to reflect the proper classification of our short and long-term investments in marketable securities. These corrections increased working capital by approximately \$16.9 million and \$7.6 million at December 31, 2005 and 2004, respectively, decreased working capital by \$775,000 at December 31, 2003, and have no effect on our earnings, cash flows, stockholder's equity or our compliance with debt covenants.

These selected condensed financial statements should be read in conjunction with the full audited financial statements presented in Aspect's Form 10-K, as filed with the Securities and Exchange Commission.

# Corporate Information

## Annual Meeting of Shareholders

All shareholders are welcome to attend our annual meeting, which will be held at 9:00 am on Wednesday, May 21, 2008, at Aspect Medical Systems, Inc., One Upland Road, Norwood, Massachusetts. We look forward to meeting our shareholders and answering any questions you may have at the meeting.

## Forward-Looking Statements

Certain statements made in this Annual Report to Shareholders are forward-looking statements that are subject to risks and uncertainties, including statements regarding the Company's near-term and long-term operating plans, strategies, goals, prospects and financial and operating performance and results. There are a number of important factors that could cause the Company's future performance and results of operations to differ materially from such statements, including without limitation those set forth under the heading, "Risk Factors" in the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2007, which is filed with the Securities and Exchange Commission. These statements should not be relied upon as representing the Company's expectations of beliefs as of any date subsequent to the date of this Annual Report.

## Board of Directors

Nassib G. Chamoun  
President, Chief Executive Officer,  
and Founder

J. Breckenridge Eagle  
Chairman of the Board of Directors

Boudewijn Bollen  
Member of the Board of Directors

Michael Esposito  
Partner  
Norbridge, Inc

David W Feigal, M.D., M.P.H.  
Senior VP Global Regulatory and  
Global Safety Surveillance  
Élan Pharmaceuticals

Edwin M. Kania, Jr.  
Senior Managing Director and Chairman  
Flagship Ventures

John O'Connor  
Retired, PricewaterhouseCoopers LLP

James J. Mahoney, Jr.  
President, The Mahoney Group

Donald Stanski, M.D.  
Vice President, Global Head,  
Modeling and Simulation  
Novartis Pharma AG  
Professor of Anesthesia (emeritus)  
Stanford University

## Executive Officers

Nassib G. Chamoun  
President, Chief Executive Officer,  
and Founder

J. Breckenridge Eagle  
Chairman of the Board of Directors

Michael Falvey  
Vice President,  
Chief Financial Officer and Secretary

Margery Ahearn  
Vice President of Human Resources

John Coolidge  
Vice President of Manufacturing Operations

Marc Davidson  
Vice President of Engineering

Philip H. Devlin  
Vice President and General  
Manager of Neuroscience

William Floyd  
Executive Vice President of  
Worldwide Sales and Marketing

Scott D. Kelley, M.D.  
Vice President of Medical Affairs

Paul J. Manberg, Ph.D.  
Vice President of Clinical,  
Regulatory and Quality Assurance

## Investor Relations

Financial Relations Board  
111 East Wacker Drive  
Chicago, Illinois 60601  
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## Corporate Counsel

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60 State Street  
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617.526.6000

## Auditors

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## Transfer Agent

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250 Royall Street  
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f: 31.30.662.9150  
e: amsint@aspectms.com

## Form 10-K

The Company's Annual Report on Form 10-K, as filed with the Securities and Exchange Commission for the fiscal year ended December 31, 2007, is available free of charge upon written request to Aspect Medical Systems, Inc., Investor Relations Department, One Upland Road, Norwood, Massachusetts 02062



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