

Annual Report 2004



LMS Medical Systems seeks to improve obstetrical care and patient safety with software tools that continually analyze complex clinical information, assisting the medical staff in making the right decisions at the right time.

Message to Shareholders

A mere five years ago, the term healthcare information technology meant little outside a small group of forward thinkers. Today, healthcare information technology is rightly assuming its place as a key quality driver throughout North America.



While healthcare IT has become widely recognized as a means of supporting streamlined care processes and protocols, it now also focuses on the material improvement of the assessment of a wide range of clinical parameters. In the near future we anticipate that we will see ways and means by which healthcare IT will provide a new dimension of knowledge and understanding in complex clinical situations. Within this new dimension is the realm of Computer Assisted Labor Management (CALM™) obstetrical technology.

LMS has worked diligently over the past six years to research, develop, successfully complete clinical studies with 11,000 patients and gain regulatory clearance to market CALM™. The CALM™ Decision Support Suite consists of innovative offerings that respond to the fundamental clinical issues facing obstetrics.

LMS has expanded the use of the CALM™ product line into different care settings. CALM™ technology is now being used in hospitals of all sizes, from university teaching hospitals to community hospitals to small, rural facilities. We have networked hospitals together enabling obstetrical specialists to remotely access advanced analysis on laboring patients hundreds of miles away. Doing so provides for the first time the opportunity for the distant obstetrical consultant to have access to real-time monitoring information and CALM™ analysis so that recommendations are made on the most current and complete information.

Innovating beyond care for mothers in labor, LMS has developed two leading edge tools directed at the well-being of the fetus itself. CALM™ Patterns focuses on assessing fetal tolerance to labor. Research work

has been completed on this new module and submissions made to regulatory authorities for marketing clearance. CALM™ ANNi, designed to provide more explicit assessments of the risk of birth-related brain injury, is scheduled to complete research and development by year end, after which regulatory submissions will proceed.

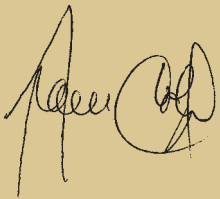
LMS is proposing a compelling business case to customers. In clinical terms, LMS is addressing the priorities of care within obstetrics with an approach that is unique in the field. In the risk management arena, something you will hear more about on subsequent pages of this report, we are undertaking strategies we believe can provide considerable impact to improve quality and reduce risk. Translated into financial terms, this creates the opportunity for healthcare system cost reductions.

The past year has seen the finalization of our distribution strategy. We have successfully demonstrated the ability to deploy standalone departmental systems, we can interface into existing departmental systems and, through our US business partner, we can seamlessly interface into hospital-wide clinical systems. We use both our own direct strategic sales force and well-established distribution partners in order to maximize reach and depth in the marketplace.

As to the fiscal 2005 outlook, we intend to increase our customer base, obtain additional regulatory clearances, release new products and explore opportunities in obstetrical markets outside of North America.

None of these achievements could have been attained without the efforts of the LMS team. Its members are our greatest asset, our life blood. We salute their insight and dedication: together, we will meet the challenges and deliver on our promise. We also wish to recognize the members of our Board of Directors and Scientific Advisory Board for their stewardship, helping us stay the course and always acting in an appropriate and ethical manner.

LMS has two overriding commitments: to mothers and their infants, medical practitioners, risk managers and hospital administrators, for whom we will strive to improve quality of care and patient safety in an area that touches all their lives so very directly, and to our shareholders, without whose support and foresight there simply would be no LMS. We take this opportunity to thank our stakeholders and reiterate our commitment to vigilantly work to create continued growth in shareholder value.



Diane Côté
President and Chief Executive Officer



Diane Côté
President & Chief Executive Officer

LMS Medical Systems Technology

Since the introduction of the Friedman curve in the 1950s, obstetrical and perinatal care has experienced only modest advances in technology. The first and most important advancement has been the advent of fetal monitoring systems.



“The CALM™

Curve helps us make better and more timely decisions to the advantage of the patient.”

Dr. Robert Gauthier

Professor, Department of Obstetrics and Gynecology

Université de Montréal

Head, Department of OB/GYN

Sainte-Justine Hospital

Montreal, Qc

Fetal monitors, which remain a cornerstone of the labor and delivery process, are set up at the bedside to capture and display fetal heart tracings and uterine contractions.

Approximately two decades ago Central Monitoring and Information Systems were introduced in hospitals. These systems provide the capability for central surveillance of activities taking place in the different birthing rooms within the labor and delivery unit. They have grown over time to focus on the documentation aspects of a patient's record, the display of the fetal heart rate recordings and their permanent archiving.

Looking at our product offerings in this context, in our view, the LMS CALM™ technology not only enhances the functionality of both these deployments but also adds unique value through its Decision Support Suite, which takes into account physiological assessments of the mother-to-be and the fetus and therefore represents a new generation of tools for obstetrics.

LMS Medical Systems aims to help professionals improve maternity care. Our software tools analyze clinical data in real time at the bedside as the labor and delivery process develops. Using the power of computers, pioneering proprietary algorithms and neural networks to crystallize the experience of thousands of deliveries, CALM™ technology brings to clinicians consistent and precise analyses that are not otherwise possible. These tools focus on numerous levels of the healthcare organization, from proactive applications at the bedside where clinical decisions are made to departmental and regional levels where healthcare programs are defined and evaluated.

Through extensive clinical studies, LMS has been building and validating a wide range of procedures that allow the management of fetal heart rate records, medical record documentation and intelligent analysis of clinical events during

The CALM™ Curve brings considerable opportunity to labor assessment. In 2004, the total US cesarean rate was 26.2%, which equates to over one million procedures. The most frequent indication for cesarean is so-called slow progress, or dystocia. To



CALM™ technology

childbirth. The networking aspects of the software enhance communication and bring the expertise of specialists across great distances to the point of care.

Intelligent analysis of labor progress

In use at hospitals in the US and Canada, the CALM™ Curve is a computerized method for evaluating labor progress. The patient's status throughout labor is plotted and compared to the mean and outer limits of a reference population. The comparisons are shown graphically and expressed in percentiles, giving a precise and consistent evaluation of labor progress. Results recently published in the *Journal for Healthcare Quality* describe clinical trial results involving more than 11,000 first-time mothers in Canadian and US hospitals. When the CALM™ Curve was introduced, cesarean rates fell from 1,124/5,753 (19.54%) to 923/5,554 (16.62%) at 12 months ($P=0.00006$).

date, this complex diagnosis relies solely on the judgment of the physician. Variation exists in judgment from physician to physician and therefore in cesarean rates from state-to-state even when the characteristics of the mothers are very similar. For example, in the State of Texas, C-section rates vary from the mid-teens to forty plus percent on a hospital to hospital basis.

The CALM™ Curve compares a mother's labor progress to a reference population, making adjustments for several changing factors during her labor. This adds precision and consistency to the evaluation of labor, removing much of the subjectivity and inconsistency associated with traditional methods. Hence there is an opportunity for clinical teams to have a standardized way of assessing labor and a common language for communicating their evaluations and for developing clear guidelines so that cesareans are performed on

enables hospitals to network, providing real-time consultation to remote locations.

time and when appropriate. Both excessive use of cesarean and failure to perform a cesarean when it is needed have been identified as problems in obstetrics.



“The next great leap in healthcare IT will come from tools that improve patient safety and outcomes, and advance our understanding beyond traditional beliefs.”

*Dr. Hugh E. Mighty
Chairman, Department of Obstetrics and Gynecology
and Reproductive Sciences
University of Maryland School of Medicine
Baltimore, MD*

The Institute of Medicine has stated that cesarean sections are the most prevalent form of major surgery in the United States and recommends that their use be reduced. In addition to the clinical impact, the cost of this surgical intervention is considerably higher than that of a vaginal birth. With more than one million C-sections being done annually in the United States, the additional financial burden to the healthcare system is significant.

In some instances, women having had a previous cesarean section can attempt to deliver vaginally in later pregnancies. This practice was encouraged until it became apparent that catastrophic complications, such as uterine rupture, occurred in approximately 1% of women attempting vaginal birth after cesarean (VBAC). Indeed VBAC rates have fallen steadily since 1997, thus placing increased importance on controlling primary cesarean rates.

For those women who desire a vaginal birth after a cesarean section, the CALM™ Curve has been shown to be a useful indicator of the safe limits of labor progress. A retrospective case-controlled study of patients with uterine rupture showed that, in approximately 40% of the cases, labor progress was identified as falling outside the conservative definition of the lower VBAC model limits hours before the rupture occurred.

Fetal heart rate records

Electronic fetal monitors measure both the baby's heart rate and the mother's uterine contraction patterns during labor. According to the Birth Reports of National Vital Statistics, use of electronic fetal monitoring has increased steadily from 68.4% of all US births in 1989 to 84.8% in 2001. The clinical staff looks at certain features in these tracings to assess the baby's tolerance to labor or pre-labor conditions. CALM™ Alerts allows each site to instruct the system to issue a visual and/or audible warning when the baby's heart rate exceeds certain thresholds. CALM™ Advanced Annotations allows clinicians to select, measure and label portions of the tracing with electronic calipers. CALM™ Archive enables hospitals to store, retrieve and print these records with assurance that they meet health record standards pertaining to privacy and authenticity.

Abnormal patterns in the fetal heart rate tracing can indicate fetal distress and may lead to interventions such as more diagnostic tests or delivery by cesarean section. Failure to recognize the degree of fetal distress in labor is a leading cause of medical error during childbirth. While CALM™ Advanced Annotations allows the clinician to examine and mark portions of the tracing, a new LMS product takes the next step, using the power of the computer to provide objective, real-time detection, classification and labeling of fetal heart rate patterns. This product, CALM™ Patterns, has completed

development and is currently undergoing regulatory review.

LMS intends to go beyond pattern recognition and labeling with a specific type of technology that holds promise in this regard. Artificial neural networks are a type of computer/mathematical technique used to recognize features in the fetal heart rate tracing and to associate them with probable outcomes. Artificial neural networks are particularly useful in analyzing biological processes because there is significant variation from case to case and relationships between features and outcomes are not as simple as they might be in a pure chemical reaction.

CALM™ ANNi (Artificial Neural Network intelligence) will use neural network techniques to recognize certain forms in the fetal heart rate recordings and to estimate the associated risk of brain injury during birth. Development of CALM™ ANNi is currently being completed, after which it will be submitted for regulatory review.

Communications

Once a problem is identified, many nuances or management options may be suitable. Failure to select the appropriate action is another point of potential system failure. To address this we have released a tool called CALM.Net. CALM.Net links distant hospitals together and provides a clinician in one center with the ability to consult a colleague in a remote location.

Using CALM.Net, the consulting physician can view all components of the CALM™ medical record in real time for a patient hundreds of miles away, together with all the analyses performed by our intelligent algorithms. This is particularly valuable as a growing number of regions are experiencing obstetrical manpower shortages which, as a result, place additional load for labor and delivery on the

shoulders of general practitioners. The CALM™ consultation software meets requirements for telemedicine consultations as well as legislation relating to the confidentiality of patient information.

The ongoing process of “analyze, plan, and act” is an essential part of the evolution of a healthcare system towards better care. CALM™ Profiles is a statistical package that allows departmental managers and hospital executives to study a large variety of obstetrical factors describing their patients, the care they received and their outcomes so that they can plan and track the effect of new programs in their hospital or within a group of hospitals.

An exclusive product line

LMS is committed to being at the forefront of obstetrical care. As such, we focus the enhancement of our product line on clinical research and development that result in better decision making capability at the point of care for clinical teams.

In terms of the spectrum of solutions it provides, the performance of its tools and the complexity of the clinical analysis performed, we believe LMS provides truly unique systems. In addition, LMS' systems are currently protected by a series of patents and patents pending in Canada, the United States and the European Union.

The total is greater than the sum of its parts

The CALM™ product suite is a point of care software system designed to provide obstetricians and nurses guidance with respect to their decisions; an information management system; a tool to assist them with patient monitoring; access to obstetrical medical records and the capability to consult in real time with practitioners at remote sites. The modules of the CALM™ system complement each other in order to bring the best decision making and support structure to the bedside.




“We are working to meet the challenge of providing clinicians the right information to make the right decisions at the right time.”

*Dr. Emily F. Hamilton
Vice President & Founder
LMS Medical Systems*

The Marketplace

A company's success is very much a function of the level of readiness of a market to accept its products. While, in our view, LMS proposes a compelling clinical and financial case, we believe that we also benefit from a unique window of opportunity as converging trends described below become enablers for our products.



Technology for the next decade will provide for better outcomes, integrating seamlessly across the landscape of hospital IT networks.

The need to improve quality in order to increase the efficiency and efficacy of care has become a driving force in the modernization of healthcare systems in North America. Pressure is growing from patients, risk managers, insurers and providers to introduce solutions that will support this effort.

Quality improvement in obstetrics is a multi-faceted endeavor. The challenge has often been expressed as the requirement to address the overuse, underuse and misuse of clinical resources so that the best possible outcomes are reached. In response to this challenge, we have developed strategies to deliver solutions to the marketplace that, we believe, respond to this need.

Some LMS tools are more operational in their intent because they streamline processes, reduce complexity, avoid duplication and break down traditional functional barriers to efficiency. Others contribute to improving the access to updated clinical knowledge. Improved access to clinical knowledge is important because the vast quantity of today's scientific data makes it difficult, if not impossible, for an individual clinician to correlate all information that is necessary to practice good, evidence-based medicine. In addition, LMS has innovative tools that quickly and consistently assess and communicate physiological parameters for both the mother-to-be and the fetus. In doing so, we assist caregivers in making better decisions and support better outcomes.

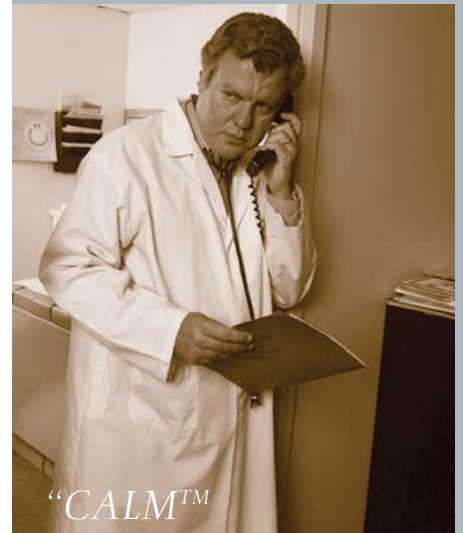
There is growing recognition of the central role of information technology in effecting change and improving quality. Decision support technologies are of particular interest in this regard. Hospitals are consolidating their information technology portfolios and looking to architect their healthcare operations so they can leverage “enterprise-wide” IT solutions for their organizational needs. This need has arisen, in part, from the increase in morbidity and mortality resulting from medical errors. Consequently, hospitals are migrating from an aggregate of independent applications and islands of information to operating environments where patient, clinical and financial data flow easily and seamlessly across the enterprise. We believe considerable benefits will be reaped by hospitals that run integrated systems and these benefits will rapidly outweigh the cost of replacing standalone legacy departmental systems.

Beyond these trends, the field of obstetrics faces additional challenges including the complexity of diagnosis of clinical conditions, the stress of day-to-day departmental activities and the lack of tools to provide objective, standardized assessments of physiological parameters essential to good outcomes. These issues introduce additional risk into the specialty. Furthermore, obstetrical related litigation has substantially increased in response to adverse events. Therefore risk management, as an enterprise function, is now playing a proactive role in the definition of strategies and support of tools to increase patient safety.

While these trends and challenges will reshape and optimize the healthcare industry as a whole and obstetrics in particular, the CALM™ technology is drawing from all quarters to

support better outcomes with increased patient safety. The time has arrived for obstetrical solutions to go beyond basic monitoring and documentation and provide the next generation of analysis and guidance for clinicians.

LMS designs products that represent innovation in clinical decisions. They are intended to provide clinical teams with accurate advanced information and analysis to make the right decisions at the right time - real time - at the bedside. These systems can function in a standalone fashion. They can also be interfaced into departmental systems or hospital-wide clinical and administrative applications, thereby adding flexibility and performance tailored to customer priorities and system architectures.



*“CALM™
technology is going
to change the way
we do obstetrics in
the future.”*

Dr. Robert Sabbah

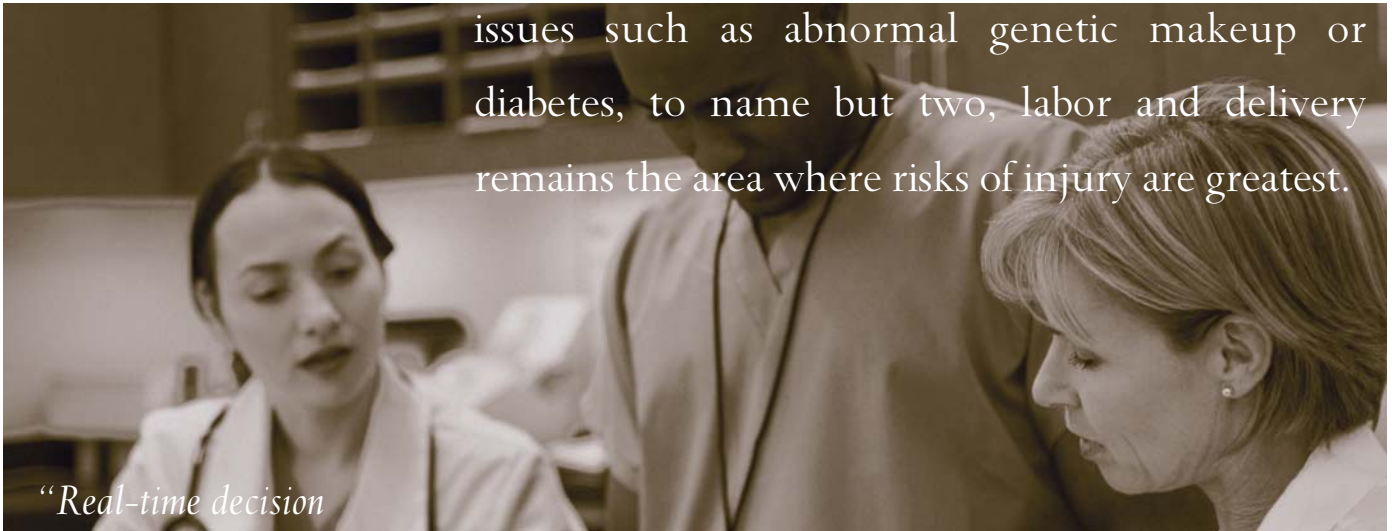
Chief, Department of Obstetrics and Gynecology

Sacré-Coeur Hospital

Montreal, Qc

Risk Management

In obstetrics, the most challenging period is the time spent in labor and delivery. While pregnancies can be complicated with various problems from issues such as abnormal genetic makeup or diabetes, to name but two, labor and delivery remains the area where risks of injury are greatest.



“Real-time decision

support proves more efficient and demonstrates better outcomes and quality of care than retrospective analysis used to initiate and support behavior modification.”

- Institute of Medicine

Key factors contributing to this risk are the lack of precise and scientifically proven tools to guide the evaluation of the patient's labor and to measure fetal well-being. Diagnostic imprecision and diagnostic errors are also recognized as being central to the increase in risk.

With the lack of material advancement in labor and delivery technology over the past four decades, the financial burden of errors in obstetrics has become massive. This is not surprising given the 4 million annual births in the US, the frequency of errors and the cost of an individual settlement for a baby with a permanent birth-related injury.

Today, childbirth issues continue to generate the most frequent malpractice claims and lawsuits as well as the greatest liability exposure and cost. The median jury award in cases involving childbirth jumped 43% in one year alone, from \$700,000 in 1999 to \$1,000,000 in 2000, and continues to climb. Settlements reaching \$10 million are reported with greater frequency. In 2003 the cost of litigation in Oklahoma totaled \$1,000 for each and every birth. Of further concern is that this phenomenon is being observed across the United States, the United Kingdom and Canada with remarkable similarity.

Obstetrics has become a specialty with one of the highest malpractice insurance premiums in the healthcare industry. An increasingly litigious environment coupled with the current level of closed claims has led to some healthcare providers discontinuing their obstetrical practices. Further compounding the general problem of medical errors in this specialty is the fact that many deliveries occur overnight or on weekends when fewer specialists are available, thereby resulting in fewer opportunities for rapid consultation.

Birth-related brain injury occurs in approximately 1.1 to 3.0 babies per 1,000 births, and the cost of caring for these children is significant. Incidences of this type of injury often lead to litigation which can result in the award of significant monetary damages to the plaintiffs. Aside from the potential award of damages against healthcare professionals, merely defending birth-related brain injury litigation can be costly to a healthcare professional. In response to this trend, many obstetricians reduce or simply cease to provide obstetrical care.

Suboptimal care is at times a factor in cases of birth-related brain injury. The most common problems are the failure to recognize abnormal fetal heart rate patterns and delays or failure to communicate these findings. In a review of successful claims by the Florida Neurologic Injury Compensation Association, a persistently abnormal or non-reassuring fetal heart rate recording was seen in all cases. The single leading clinical diagnosis, accounting for 14% of cases in this series, was uterine rupture with an attempted vaginal birth after cesarean. Another review found, non-compliance with the standard of care regarding the monitoring of fetuses in 30% of 290 malpractice cases.

A combination of factors which include uncertainty in diagnosis and fatigue, while unusual in medicine at large, is central to obstetrics. CALM™ intelligent products are directed at better identification of normal and abnormal situations both in the mother-to-be and the fetus. Correct identification of a problem is a prerequisite to proper management and LMS tools are intended to serve as a trigger to identify these issues.

LMS focus:

Improving quality while reducing risk

Quality improvement in healthcare settings focuses on the reduction in the overuse, underuse

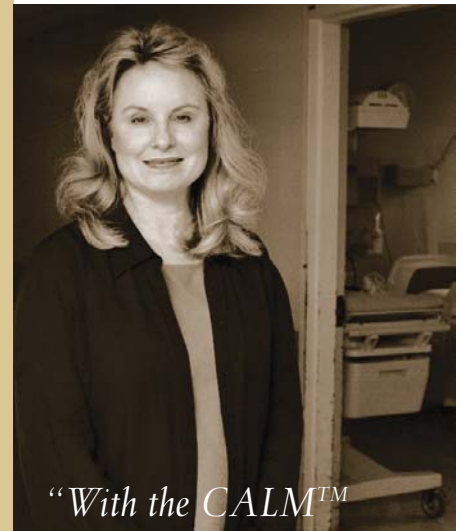
or misuse of healthcare resources. Risk management profiles typically map a hospital's clinical performance in this regard.

- Better assessment of labor progress can lead to the better use of cesarean sections.
- Better assessment of fetal distress can reduce the incidence and severity of birth-related brain damage.

LMS Medical Systems' decision support tools use advanced mathematical models and neural networks to improve diagnosis and communication in this environment. They include mathematical models for clear identification of normal and abnormal labor progression, digital signal processing and neural network applications for the identification of abnormal fetal heart rate patterns, and specialized graphical displays promoting consistent use of terms and providing access and reminders for standardized care protocols. These strategies facilitate communication among caregivers, provide the capacity for real-time data transfer, provide remote web-based real-time consultation between general practitioners and specialists, and allow for the tracking of outcomes for departmental quality programs.

This CALM™ framework is consistent with a concluding theme of the Institute of Medicine's report entitled *Crossing the Quality Chasm. A New Health System for the 21st Century*. Institute of Medicine, 2001.

Creating software applications that are easy to use and that can enhance the capacity of clinical teams to care for women and their babies is a rewarding and inspiring challenge.



“With the CALM™

technology, we are finally applying direct arrows to the risk management targets identified in OB.”

Matson Sewell

Risk Manager

Dartmouth Hitchcock Medical Center

Lebanon, NH

CORPORATE DIRECTORY AND INFORMATION

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Annual Meeting

Shareholders are invited to attend the Company's Annual Meeting at 4:15 p.m. (E.S.T) on September 15, 2004 at the Queen Elizabeth Hotel, 900 Rene Levesque West, Montreal, Quebec Canada H3B 4A5.

Statements contained in this Annual Report, including those pertaining to scientific and clinical research, commercialization plans, strategic alliances and intellectual property protection, other than statements of historical fact, are forward-looking statements subject to a number of uncertainties that could cause actual results to differ materially from statements made. These include risks associated with the success of the research and development programs, the regulatory approval process, competition, and financing capability.

Innovation in Clinical Decisions

