



eLITERATURE REVIEW

eNeonatal Review

Presented by
The Johns Hopkins University
School of Medicine & The Institute
for Johns Hopkins Nursing

Supported by an Educational
Grant from INO Therapeutics



- HOME
- CME/CNE INFORMATION
- PROGRAM DIRECTORS
- NEWSLETTER ARCHIVE
- EDIT PROFILE
- RECOMMEND TO A COLLEAGUE

July 2007: VOLUME 4, NUMBER 11

Disclosure of Medical Errors

[EDITOR'S NOTE: For Respiratory Therapists interested in receiving CE credit for this program, please note that the map that illustrates the individual state requirements for CE credits has been updated. To view the map, please [visit this page](#).]

In This Issue...

Since the publication of the 1999 report from the Institute of Medicine on errors in medical care, researchers and quality of care experts have worked diligently toward designing, implementing, and evaluating error reduction strategies. More recently, these efforts have included studies of both physician and patient attitudes toward the disclosure of medical errors.

In this issue, we review recent literature on parents' perceptions of medical errors in the care of their children, pediatricians' attitudes surrounding communication of errors, and the characteristics of complete error disclosure.

Program Information

- [CE Info](#)
- [Accreditation](#)
- [Credit Designations](#)
- [Target Audience](#)
- [Learning Objectives](#)
- [Internet CME/CNE Policy](#)
- [Faculty Disclosure](#)
- [Disclaimer Statement](#)

Length of Activity
1.0 hours Physicians
1 contact hour Nurses

Expiration Date
July 25, 2009

Next Issue
August 16, 2007

THIS ISSUE

- [IN THIS ISSUE](#)
- [COMMENTARY from our Guest Author](#)
- [REPORTING MEDICAL ERRORS: AN OVERVIEW](#)
- [PHYSICIAN ATTITUDES](#)
- [PEDIATRICIAN ATTITUDES](#)
- [PARENTAL PREFERENCES](#)
- [CASE STUDY: MEDICAL ERROR RESULTING IN DEATH](#)
- [FACTORS PROMOTING MALPRACTICE CLAIMS](#)
- [THE ELEMENTS OF ERROR DISCLOSURE](#)

Course Directors

Edward E. Lawson, MD
Professor
Department of Pediatrics
Division of Neonatology
The Johns Hopkins University
School of Medicine

Christopher U. Lehmann, MD
Assistant Professor
Department of Pediatrics
Division of Neonatology
The Johns Hopkins University
School of Medicine

Lawrence M. Nogee, MD
Associate Professor
Department of Pediatrics
Division of Neonatology
The Johns Hopkins University
School of Medicine

Mary Terhaar, DNSc, RN
Assistant Professor
Undergraduate Instruction
JHU School of Nursing

Robert J. Kopotic, MSN, RRT,

COMPLETE THE POST TEST

Step 1.
Click on the appropriate link below. This will take you to the post-test.

Step 2.
If you have participated in a Johns Hopkins on-line course, login. Otherwise, please register.

Step 3.
Complete the post-test and course evaluation.

Step 4.
Print out your certificate.

[PHYSICIAN POST-TEST](#)

[NURSE POST-TEST](#)

Respiratory Therapists
Visit [this page](#) to confirm that your state will accept the CE Credits gained through this program or click on the link below to go directly to the post-test.

[RESPIRATORY](#)

FAARC

Director of Clinical Programs
ConMed Corporation

RESPIRATORY
THERAPIST
POST-TEST

GUEST AUTHORS OF THE MONTH



Commentary:
**Pamela Kimzey
Donohue, ScD, PA-C**
Director of Performance
Improvement and Safety
Division of Neonatology
The Johns Hopkins University
School of Medicine

Guest Faculty Disclosure

No faculty member has indicated that they have received financial support for consultation, research or evaluation or has a financial interest relevant to this literature review.



Reviews:
George Kim, MD
Research Associate
Neonatology and Health
Sciences Informatics
The Johns Hopkins University
School of Medicine

Unlabeled / Unapproved Uses

The authors have indicated that there will be no reference to unlabeled/unapproved uses of drugs or products in this presentation.

[Course Directors' Disclosures](#)

LEARNING OBJECTIVES

At the conclusion of this activity, participants should be able to:

- Identify the key elements of complete error disclosure
- Discuss the currently identified barriers to error disclosure
- Explain the relationship between error disclosure and litigation

COMMENTARY

As neither pediatric health care systems nor pediatric providers are infallible, errors happen in the medical care of children. Sharek and colleagues¹ report 74 adverse events for every 100 patients admitted to a neonatal intensive care unit (NICU); studying 749 patients and 17,106 hospital days in 15 NICUs, they found the number of adverse events ranged from 0 to 11 per infant. It is not surprising, therefore, that 93% of the pediatricians surveyed by Garbutt et al² reported involvement in a medical error.

Although the majority of pediatricians profess to support disclosing errors, less than half actually do so.^{2,3} A complex combination of personal and professional attitudes forms the basis for failure to disclose errors,³ with barriers including the fear of litigation, the inability to admit a mistake, and the fear of implicating other providers.⁴ Physician shame is also a powerful deterrent to error disclosure, and nowhere may this be truer than in pediatrics. According to Kaldjian et al,³ 92% of physicians agree with the statement: "When I make a medical mistake, I am my own worst critic." Pediatricians not only have trouble forgiving themselves but also fear that others, including their patients' parents, will be unforgiving.

However, little is known about parents' perceptions of medical errors. In the only paper published to date targeting a pediatric population, Hobgood et al⁵ showed that parents want full disclosure of all medical errors, regardless of severity. The

RECOMMEND TO
A COLLEAGUE

NEWSLETTER
ARCHIVE

study also suggests that there may be racial differences in how parents perceive medical errors. Data from this study should encourage providers to disclose all errors to parents, even those they perceive to be minor, and thus avoid making assumptions about what parents want to know or should know about their child's medical care.²

The need for transparency surrounding a medical error in pediatrics is highlighted by the case study presented by Keatings et al,⁶ in which communication concerning the circumstances leading to the death of an 11-year-old girl was both delayed and misleading. Poor communication between parents and physicians contributes to malpractice litigation.⁷ Parents have been shown to be more satisfied with the quality of care and less likely to initiate legal action after an error if communication is honest and forthcoming.^{7,8} Parents also value physicians who listen and allow sufficient time for questions.

Professional organizations such as the Joint Commission and National Quality Forum stress the importance of properly communicating a medical error and endorse a 4-step process: 1) describe what happened as soon as it is known; 2) take responsibility; 3) apologize; and 4) review what steps are being taken to avoid a similar error in the future.^{4,9} Although these recommendations provide a straightforward framework, physicians have difficulty adhering to them in the high-stress context of error disclosure. Further, few physicians receive training in how to disclose errors, and most have poor skills in doing so. Providers often disclose an error without "connecting the dots," ie, making it clear that a medical error caused the harm experienced by the patient.¹⁰ When asked, most physicians want coaching in how to do a better job. Using a simulation center could provide physicians and other healthcare professionals with experience in communicating errors before they are faced with the reality.

And directly to the point of this issue, research is urgently needed to help guide error disclosure in the NICU environment where exposure to high-risk medical care is prolonged.

References

1. Sharek PJ, Horbar JD, Mason W, et al. [Adverse events in the Neonatal Intensive Care Unit: Development, testing, and findings of an NICU-focused trigger tool to identify harm in North American NICUs](#). *Pediatrics* 2006;118:1332-1340.
2. Garbutt J, Brownstein DR, Klein EJ, et al. [Reporting and disclosing medical errors: pediatricians' attitudes and behaviors](#). *Arch Pediatr Adolesc Med*. 2007;161:179-185.
3. Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. [Disclosing medical errors to patients: attitudes and practices of physicians and trainees](#). *J Gen Intern Med*. 2007;22:988-996.
4. Matlow A, Stevens P, Harrison C, Laxer RM. [Disclosure of medical errors](#). *Pediatr Clin North Am*. 2006;53:1091-1104
5. Hobgood C, Tamayo-Sarver JH, Elms A, Weiner B. [Parental preferences for error disclosure, reporting, and legal action after medical error in the care of their children](#). *Pediatrics*. 2005;116:1276-1286.
6. Keatings M, Martin M, McCallum A, Lewis J. [Medical errors: understanding the parent's perspective](#). *Pediatr Clin North Am*. 2006;53:1079-1089.
7. Hickson GB, Clayton EW, Githens PB, Sloan FA. [Factors that prompted families to file medical malpractice claims following perinatal injuries](#). *JAMA*. 1992;267:1359-1363.
8. Donn SM. [Medical liability, risk management, and quality of health care](#). *Semin Fetal Neonatal Med*. 2005;10:3-9.
9. Gallagher TH, Studdert D, Levinson W. [Disclosing harmful medical errors to patients](#). *N Engl J Med*. 2007;356:2713-2719.
10. Fein SP, Hilborne LH, Spiritus EM, et al. [The many faces of error disclosure: a common set of elements and a definition](#). *J Gen Intern Med*. 2007;22:755-761.

REPORTING MEDICAL ERRORS: AN OVERVIEW

Matlow A, Stevens P, Harrison C, Laxer RM. **Disclosure of medical errors.** *Pediatr Clin North Am.* 2006;53:1091-1104.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#)



[View full article](#)

In their 1999 report "To Err is Human," the Institute of Medicine recommended that to improve the quality and safety of care, adverse events resulting from medical error should be disclosed to patients and their families. In this 2006 publication, Matlow et al examined medical error disclosure in several contexts, and provided summary consensus recommendations. Historically, the practice of advising physicians to "guard what is said to the patient" stems from a rise in malpractice cases in the early 20th century. More recently, however, this advice has been called into question in the face of ethical frameworks emphasizing physicians' professional and fiduciary duties, respect for patients' autonomy, and the inherent trust in a doctor-patient relationship. The authors report on medico-legal experience and mock trial studies, which suggest that proactive disclosure may lead to claims avoidance and more favorable outcomes (although they note that more research is needed in these areas). The researchers report that patients' (and parents') preference for full disclosure when a medical error has occurred is universal, with expectations of explicit statements that the error in fact occurred, what the error was, why it occurred, how it will be prevented from recurring, and an apology. Reported physician barriers to disclosure include: difficulty in admitting mistakes, fear of implicating others, possibilities of legal action, and the blame felt by physicians when an error has occurred. The authors note that Harvard University, the Veterans Health Administration, and JCAHO (among others) have provided outlines of: a) events that should be disclosed/communicated to the patient; b) how they should be communicated and in what contexts (what, who, when and where); c) documentation of the medical error; and d) support of error victims.

PHYSICIAN ATTITUDES

Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. **Disclosing medical errors to patients: attitudes and practices of physicians and trainees.** *J Gen Intern Med.* 2007;22:988-996.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#) No URL available for full article: Epub 2007 May 1

Kaldjian et al designed a cross-sectional survey of 538 faculty, resident and student physicians – pediatricians comprised 46% of faculty and 27% of residents – asking participants if they had ever a) made "a mistake that prolonged treatment/caused discomfort" or b) "caused disability/death," and their disclosure of it. Participants were also presented with a hypothetical error vignette (with major, minor, or no harm response choices), and further, were asked to detail their beliefs about disclosure according to a taxonomy of facilitating and impeding attitudes. Forty-seven percent of respondents reported having made at least one minor or major error: 15% of faculty and residents reported a minor error that they disclosed and one they did not; 1% reported a major error they disclosed and one they did not; and 10% reported non-disclosure of an error due to legal liability (with 6% of faculty reporting attorney advice not to disclose). The researchers found that both actual and hypothetical disclosures were associated

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

with feeling an obligation to disclose, as well as the belief that the decision to disclose did not depend on whether or not it would help the patient. Actual disclosure alone was associated with the belief that disclosure alleviates guilt, while hypothetical disclosure alone was associated with the belief that disclosure is right (even at personal cost) because the respondent would want it and because it strengthens patient trust. Faculty were found more likely than trainees to disclose errors resulting in major or no harm. Of particular note, pediatricians were more likely than other physicians to disclose hypothetical error resulting in major or no harm and less likely to believe disclosure depends on if the information will help the patient. Those respondents believing forgiveness to be important were more likely to disclose hypothetical error with minor harm but were less likely to have disclosed an actual error with major harm. Further, litigation experience was associated with increased actual and hypothetical disclosure, although being a defendant was associated with actual non-disclosure of a disabling or fatal error.

PEDIATRICIAN ATTITUDES

Garbutt J, Brownstein DR, Klein EJ, et al. **Reporting and disclosing medical errors: pediatricians' attitudes and behaviors.** *Arch Pediatr Adolesc Med.* 2007;161:179-185.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#)



[View full article](#)

In an exploration of pediatricians' attitudes toward and experience with reporting errors to hospitals and disclosure of errors, Garbutt et al performed an anonymous cross-sectional survey of 439 university-affiliated hospital and community pediatricians (50% in private practice) and 118 pediatric residents from St Louis and Seattle. Ninety-three percent of participants had been involved in a medical error. Pediatricians were asked about their beliefs and behaviors related to reporting, disclosure and collegial discussion of errors, their experience with formal and informal reporting of errors, features of systems that would increase willingness to report errors, and their beliefs and experiences regarding disclosure (eg, types of errors that should be disclosed, barriers to disclosure, and personal experience). While respondents endorsed reporting errors to the hospital (97%, serious; 90%, minor; 82%, near miss), only 39% thought that current error reporting systems were adequate. Most had used formal ('incident report' – 65%) or informal ('telling a supervisor/senior physician' – 47%/38%) methods of reporting errors, and 72% had discussed errors with colleagues. Respondents endorsed disclosing errors to patients' families (99% serious; 90% minor; 39% near miss), and many had done so (36% serious, 52% minor). Some respondents reported multiple barriers to disclosure, as well as a reduced likelihood to disclose an error if they perceived the family would not understand, was unaware, or would not want to know. Residents were more likely than attending physicians to believe that disclosing a serious error would be difficult (96% vs 86%) and to want specific disclosure training (69% vs 56%). The authors recommend formal and experiential training for residents to further educate them in open communication about errors

PARENTAL PREFERENCES

Hobgood C, Tamayo-Sarver JH, Elms A, Weiner B. **Parental preferences for error disclosure, reporting, and legal action after medical error in the care of their children.** *Pediatrics.* 2005;116:1276-1286.

(For non-journal subscribers, an additional fee may apply for full text articles.)

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

REPORTING MEDICAL ERRORS: AN OVERVIEW

Matlow A, Stevens P, Harrison C, Laxer RM. **Disclosure of medical errors.** *Pediatr Clin North Am.* 2006;53:1091-1104.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#)



[View full article](#)

In their 1999 report "To Err is Human," the Institute of Medicine recommended that to improve the quality and safety of care, adverse events resulting from medical error should be disclosed to patients and their families. In this 2006 publication, Matlow et al examined medical error disclosure in several contexts, and provided summary consensus recommendations. Historically, the practice of advising physicians to "guard what is said to the patient" stems from a rise in malpractice cases in the early 20th century. More recently, however, this advice has been called into question in the face of ethical frameworks emphasizing physicians' professional and fiduciary duties, respect for patients' autonomy, and the inherent trust in a doctor-patient relationship. The authors report on medico-legal experience and mock trial studies, which suggest that proactive disclosure may lead to claims avoidance and more favorable outcomes (although they note that more research is needed in these areas). The researchers report that patients' (and parents') preference for full disclosure when a medical error has occurred is universal, with expectations of explicit statements that the error in fact occurred, what the error was, why it occurred, how it will be prevented from recurring, and an apology. Reported physician barriers to disclosure include: difficulty in admitting mistakes, fear of implicating others, possibilities of legal action, and the blame felt by physicians when an error has occurred. The authors note that Harvard University, the Veterans Health Administration, and JCAHO (among others) have provided outlines of: a) events that should be disclosed/communicated to the patient; b) how they should be communicated and in what contexts (what, who, when and where); c) documentation of the medical error; and d) support of error victims.

PHYSICIAN ATTITUDES

Kaldjian LC, Jones EW, Wu BJ, Forman-Hoffman VL, Levi BH, Rosenthal GE. **Disclosing medical errors to patients: attitudes and practices of physicians and trainees.** *J Gen Intern Med.* 2007;22:988-996.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#) No URL available for full article: Epub 2007 May 1

Kaldjian et al designed a cross-sectional survey of 538 faculty, resident and student physicians – pediatricians comprised 46% of faculty and 27% of residents – asking participants if they had ever a) made "a mistake that prolonged treatment/caused discomfort" or b) "caused disability/death," and their disclosure of it. Participants were also presented with a hypothetical error vignette (with major, minor, or no harm response choices), and further, were asked to detail their beliefs about disclosure according to a taxonomy of facilitating and impeding attitudes. Forty-seven percent of respondents reported having made at least one minor or major error: 15% of faculty and residents reported a minor error that they disclosed and one they did not; 1% reported a major error they disclosed and one they did not; and 10% reported non-disclosure of an error due to legal liability (with 6% of faculty reporting attorney advice not to disclose). The researchers found that both actual and hypothetical disclosures were associated

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

 RECOMMEND TO
A COLLEAGUE

 NEWSLETTER
ARCHIVE

occurring within 1 year revealed that the recommended changes had not been made, resulting in additional re-evaluation of how system changes were implemented and followed up. Subsequent full disclosure, apology, reconciliation with the family, and recommendations (plus follow up) for system, knowledge, and education changes were accomplished and are described by the authors.

FACTORS PROMOTING MALPRACTICE CLAIMS

Hickson GB, Clayton EW, Githens PB, Sloan FA. **Factors that prompted families to file medical malpractice claims following perinatal injuries.** *JAMA*. 1992;267:1359-1363.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#) No URL available for full article

Hickson et al performed a combined structured and open-ended telephone-administered questionnaire of families in Florida who had closed malpractice claims regarding infants who suffered permanent minor injuries (loss or damage to organs) or more, including death. Of 368 eligible families, 35% participated. The responses elicited provided information about medical care, physician-family communication, cost of injury, compensation, legal, and socio-demographic factors.

When asked about reasons for filing a claim, respondents most frequently reported (multiple reasons included):

- (33%) influence from someone outside of the family (over half of those being physicians)
- (24%) the need to pay for long-term care
- (24%) the realization that the physician failed to be completely honest
- (20%) the realization that the child would have no future
- (20%) the need to “find out what happened”
- (19%) a desire to deter the physician from further malpractice or for revenge

Most respondents complained about physician-family communication, reporting that the physician: would not communicate (32%), would not listen (13%), misled them (48%), and never informed them that their infant would have permanent problems or might die (70%). The authors' note that physicians' difficulties in communicating may arise from underestimation of parents' information needs, parents' need to review the same issues several times, and/or from their own personal discomfort. Recommendations included: contemporaneous records of what is said to parents and increased efforts to improve communication, including education of trainees.

THE ELEMENTS OF ERROR DISCLOSURE

Fein SP, Hilborne LH, Spiritus EM, et al. **The many faces of error disclosure: a common set of elements and a definition.** *J Gen Intern Med*. 2007;22:755-761.

(For non-journal subscribers, an additional fee may apply for full text articles.)



[View journal abstract](#)  [View full article](#)

In a qualitative analysis of focus group transcripts from 5 academic medical



centers, (including hospital administrators, physicians, nurses and residents), Fein et al presented participants with a standard definition of medical error, followed by a hypothetical scenario of an inpatient error. Participants were asked if there should be disclosure, and if they believed the provider would disclose it. Providers were asked what steps and words they would use, while administrators were asked what they would expect to hear in a disclosure.

Transcript analysis revealed 6 elements of disclosure desired by patients:

1. admission of an error
2. discussion of the events of the error
3. linkage of the error to an effect
4. first effect of the error
5. link between the error and any harm sustained, and
6. explanation of the harm (and if it was communicated)

Five distinct types of disclosure were derived, based on the presence or absence of each of the above elements:

1. Full disclosure
(all elements present)
2. Partial disclosure: connect-the-dots
(discussion of events and explanation of harm)
3. Partial disclosure: mislead
(connect-the-dots with obfuscation of linkage of error to harm)
4. Partial disclosure: defer
(connect-the-dots with deference of linking error to harm)
5. Nondisclosure
(no elements present)

The authors provide examples and wording of each type of disclosure with regard to how it matches or does not match patient expectations, along with discussion of how this information may help create realistic guidelines for disclosure.

CME/CNE INFORMATION

[Accreditation Statement](#) — [back to top](#)

Physicians

The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Nurses

The Institute for Johns Hopkins Nursing is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

Respiratory Therapists

Respiratory therapists should [visit this page](#) to confirm that *AMA PRA Category 1 Credit(s)TM* is accepted toward fulfillment of RT requirements.

[Credit Designations](#) — [back to top](#)

Physicians

eNewsletter: The Johns Hopkins University School of Medicine designates this educational activity for a maximum of 1.0 *AMA PRA Category 1 Credit(s)TM*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Podcast: The Johns Hopkins University School of Medicine designates this educational activity for a maximum of 0.5 *AMA PRA Category 1 Credit(s)TM*. Physicians should only claim credit commensurate with the extent of their participation in the activity.

COMPLETE THE POST TEST

Step 1.

Click on the appropriate link below. This will take you to the post-test.

Step 2.

If you have participated in a Johns Hopkins on-line course, login. Otherwise, please register.

Step 3.

Complete the post-test and course evaluation.

Step 4.

Print out your certificate.

PHYSICIAN
POST-TEST

NURSE
POST-TEST

Nurses

eNewsletter: This 1.0 contact hour Educational Activity (Provider Directed/Learner Paced) is provided by The Institute for Johns Hopkins Nursing. Each newsletter carries a maximum of 1.0 contact hour or a total of 12.0 contact hours for the twelve newsletters in this program.

Podcast: This 0.5 contact hour Educational Activity (Provider Directed/Learner Paced) is provided by The Institute for Johns Hopkins Nursing. Each podcast carries a maximum of 0.5 contact hours or a total of 3.0 contact hours for the six podcasts in this program.

Respiratory Therapists

For United States: [Visit this page](#) to confirm that your state will accept the CE Credits gained through this program.

For Canada: [Visit this page](#) to confirm that your province will accept the CE Credits gained through this program.

Post-Test — [back to top](#)

To take the post-test for eNeonatal Review you will need to visit [The Johns Hopkins University School of Medicine's CME website](#) or [The Institute for Johns Hopkins Nursing](#) or download a PDF of the post-test from the issue itself for Pharmacy. If you have already registered for another Hopkins CME program at these sites, simply enter the requested information when prompted. Otherwise, complete the registration form to begin the testing process. A passing grade of 70% or higher on the post test/evaluation is required to receive CME/CNE credit.

Statement of Responsibility — [back to top](#)

The Johns Hopkins University School of Medicine and The Institute for Johns Hopkins Nursing take responsibility for the content, quality, and scientific integrity of this CME/CNE activity.

Target Audience — [back to top](#)

This activity has been developed for neonatologists, NICU nurses and respiratory therapists working with neonatal patients. There are no fees or prerequisites for this activity.

Learning Objectives — [back to top](#)

At the conclusion of this activity, participants should be able to:

- Identify the key elements of complete error disclosure
- Discuss the currently identified barriers to error disclosure
- Explain the relationship between error disclosure and litigation

Internet CME/CNE Policy — [back to top](#)

The Office of Continuing Medical Education (CME) at The Johns Hopkins University School of Medicine (SOM) is committed to protect the privacy of its members and customers. The Johns Hopkins University SOM CME maintains its Internet site as an information resource and service for physicians, other health professionals and the public.

Continuing Medical Education at The Johns Hopkins University School of Medicine and The Institute for Johns Hopkins Nursing will keep your personal and credit information confidential when you participate in a CE Internet based program. Your information will never be given to anyone outside The Johns Hopkins University program. CME/CE collects only the information necessary to provide you with the service you request.

Faculty Disclosure — [back to top](#)

It is the policy of the Johns Hopkins University School of Medicine that the faculty and provider disclose real or apparent conflicts of interest relating to the topics of this educational activity, and also disclose discussions of unlabeled/unapproved uses of drugs or devices during their presentation(s). Johns Hopkins University School of Medicine CME has established policies in place that will identify and resolve all conflicts of interest prior to this educational activity. Detailed disclosure will be made in each issue of the newsletter and podcast. The Course Directors reported the following:

- **Edward E. Lawson, MD** has indicated a financial relationship of grant/research support from the National Institute of Health (NIH). He also receives financial/material support from Nature

Respiratory Therapists

[Visit this page](#) to confirm that your state will accept the CE Credits gained through this program or click on the link below to go directly to the post-test.

RESPIRATORY
THERAPIST
POST-TEST

Publishing Group as the Editor of the Journal of Perinatology.

- **Christoph U. Lehmann, MD** has indicated no financial relationship with commercial supporters.
- **Lawrence M. Noguee, MD** has received grant support from the NIH.
- **Mary Terhaar, DNSc, RN** has indicated no financial relationship with commercial supporters.
- **Robert J. Kopotic, MSN, RRT, FAARC** has indicated a financial relationship with the ConMed Corporation.

[Guest Authors Disclosures](#)

Disclaimer Statement — [back to top](#)

The opinions and recommendations expressed by faculty and other experts whose input is included in this program are their own. This enduring material is produced for educational purposes only. Use of The Johns Hopkins University School of Medicine name implies review of educational format design and approach. Please review the complete prescribing information of specific drugs or combination of drugs, including indications, contraindications, warnings and adverse effects before administering pharmacologic therapy to patients.

© 2007 JHUSOM, IJHN, and *eNeonatal Review*

Created by [DKBmed](#).