NEONATOLOGY TODAY

News and Information for BC/BE Neonatologists and Perinatologists

Volume 3 / Issue 11
November 2008

IN THIS ISSUE

NEONATOLOGY TODAY

Editorial and Subscription Offices
16 Cove Rd, Ste. 200
Westerly, RI 02891 USA
www.NeonatologyToday.net

Neonatology Today (NT) is a monthly newsletter for BC/BE neonatologists and perinatologists that provides timely news and information regarding the care of newborns and the diagnosis and treatment of premature and/or sick infants.

ISSN: 1932-7129 (print); 1932-7137 (online). Published monthly.

CORRECTION!

October 2008 article: "**Echocardiographic Markers of a Haemodynamically Significant Ductus Arteriosus**" *by Arvind Sehgal, MD and Patrick J. McNamara, MD*

See Page 10 for details

Management of Severe Hyperkalaemia in a Case of Early Onset Septicaemia at the Peripheral [Semi-Urban] Newborn Care Set-up in India

By Sutirtha Roy, MD Physician; Sudipta Das, MBBS; Pradip Kumar Bhakat, MBBS, DVD

Name and Address of the Institution

Neonatal Care Unit, Deben Mahato [Sadar] Hospital [Purulia District Hospital], Main Road, Purulia, Postal index Code: 723101, West Bengal, India.

Abstract

Hyperkalaemia is a medical emergency and treatment should be started immediately to prevent lethal complications. This may occur unexpectedly in any patient, but should be anticipated and screened to avoid grave outcome. In a peripheral set-up like ours with limited resources, it always remains difficult to diagnose and treat such high-risk patients. The extramural neonate admitted in our unit with salient clinical features of early onset septicaemia was found to have severely raised serum potassium. With close monitoring and by offering the standard recommended components of pharmacologic therapy along with adequate Rehydration and Removal of all sources of exogenous potassium, the best possible management was provided to the patient and after convalescence, he was successfully discharged from our unit.

Case Profile:

Patient's Name: Baby of Rekha Kar **Gender:** Male **Hospital Annual Serial No**. 17149

Mother's Name: Rekha Kar
Father's Name: Ramnath Kar
Bed No. NCU 10 and Step down 3
NCU Registration No. Extramural 035

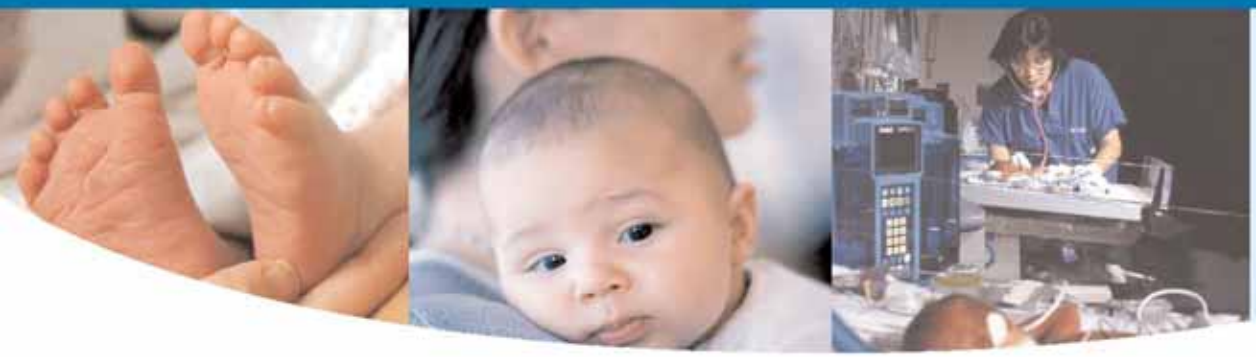
Address: Village +Post Office + Police Station: Hura **District:** Purulia **Province:** West Bengal.

Date of Birth: 22.05.2007 **Time of Birth:** 3:08 pm

Date of Admission: 25.05.2007 **Time of Admission:** 8:50 pm

Birth Weight: 3000 gm.

NEONATOLOGY POSITIONS AVAILABLE NATIONWIDE



PEDIATRIX. MEDICAL GROUP

Pediatrix Medical Group offers physicians the best of both worlds: the clinical autonomy and atmosphere of a local private practice coupled with the opportunities, administrative relief and clinical support that come from an affiliation with a nationwide network.

Pediatrix offers physicians:

- Professional liability insurance
- Competitive salaries
- CME allowance
- Comprehensive health/life benefits
- Relocation assistance
- Clinical research opportunities

Visit our Web site at **www.pediatrix.com/careers** to learn more.

We currently have openings in the following locations:

ARIZONA
Phoenix
Tucson

CALIFORNIA
Fountain Valley
Lancaster
Oxnard
Pasadena
West Covina

COLORADO
Denver

FLORIDA
Floater
Lakeland
Orlando
Pensacola
Tampa Bay

GEORGIA
Atlanta
Macon
Savannah

KANSAS
Wichita

LOUISIANA
Baton Rouge

NEVADA
Las Vegas
Reno

NEW YORK
Elmira

OHIO
Columbus
Dayton

OKLAHOMA
Oklahoma City
Tulsa

SOUTH CAROLINA
Columbia
Florence
Greenville
Spartanburg

TENNESSEE
Chattanooga
Memphis

TEXAS
El Paso
Houston
San Antonio
Victoria

WASHINGTON
Seattle

PUERTO RICO

What's new on campus?

Visit the Pediatrix University campus at www.pediatrixu.com to learn more about our continuing education activities. Recent Grand Rounds include:

- **The Current Basis for NRP**

Locum Tenens opportunities also available in many locations.

An Equal Opportunity Employer

PEDIATRIX. MEDICAL GROUP

877.250.8866 toll free

Table 1. Investigation Details

Date	Investigation	Finding/s
26.05.07	Hb, TC, DC	14.77gm%, 13500cumm, N_{32} L_{58} $E_0$5 M_{01} B_{00}
26.05.07	Band Cells, Toxic Granulation, C Reactive Protein[CRP]	04%, Present, Positive
26.05.07	Bilirubin [Total, Direct, Indirect]	9.56 mg/dl, 4.32 mg/dl,5.24 mg/dl
26.05.07 [9:10 am]	Na^+, K^+, Ca^{++}*	140 mEq/l, 7.2 mEq/l, 1.2 mEq/l [Rechecked].
26.05.07 [7:30 pm]	Na^+, K^+, Ca^{++}, CBS	140 mEq/l, 8.4 mEq/l, 1.29 mEq/l [Rechecked],116 mg/dl
27.05.07 [9:00 am]	Na^+, K^+, Ca^{++}, CBS	144 mEq/l, 5.3 mEq/l, 1.6 mEq/l, 59 mg/dl
27.05.07 [7:00 pm]	Na^+, K^+, Ca^{++}, CBS	135 mEq/l, 4.9 mEq/l, 1.12 mEq/l, 42 mg/dl
28.05.07 [9:20 am]	Na^+, K^+, Ca^{++}	135 mEq/l, 5.1 mEq/l, 1.10 mEq/l
28.05.07 [8:30 pm]	Na^+, K^+, Ca^{++}	137 mEq/l, 4.3 mEq/l, 1.18 mEq/l
27.05.07	Echocardiography	Within Normal Limits. [No Significant ECG changes due to Hyperkalaemia found].

**All Blood samples for electrolyte analysis were collected by venepuncture from fresh channel site, and values were rechecked to exclude laboratory error.*

Complete Neonatal Diagnosis

Post-term / Single / Male/LSCS / Appropriate for Gestational Age / Severe Hyperkalaemia / Early Onset Septicaemia.

Prenatal Dossier

- **Gestation:** 41-42 Weeks [clinically]. Expected Date of Confinement: 20.05.2007. Mode of Delivery: Lower Segment Caesarean Section [LSCS Indication: Post-dated pregnancy with oligohydroamnios and unfavourable cervix, Elective CS].
- **Record of Previous Pregnancies:** Married for - 1 year, Primi Gravida, P0+0+0+0
- **Maternal Problem in this Pregnancy:** History of Bleeding Per Vaginam at 12 weeks of gestation.
- **Antenatal Care and immunization:** Routine ANC done and maternal immunization completed as per schedule.

Neonatal Vignette of the Patient

LSCS was done on 22.05.2007 at 3:08 pm in a local Nursing Home [at Purulia]--> Post term, AGA-->Referred to D M [S] Hospital with the complaints of High grade Fever, Refusal to Suck, Mild icterus, Irritability and Rigidity [Since 23.05.2007]--> Admitted in NCU on 25.05.2007 at 8:50 pm--> Initial stabilization done--> Cold Sponging and PARACETAMOL Drops were given--> Kept under close observation--> Radiant Warmer Care, Moist O_2 inhalation provided--> Inj.VitK1 given [$D_{4\&14}$] Relevant investigations were done --> Septic Screening was Positive --> I V antibiotics [Inj. CEFOTAXIME $D_{4\text{-}6}$, Inj. CEFEPIME $D^{6\text{-}14}$(generation switch over was done because of inadequate clinical response)] & Inj. AMIKACIN [$D_{4\text{-}14}$] and I V Fluid started-->On 26.05.2007 K^+[9:10 am] was found 7.2 mEq/L --> Urine output was adequate, No weight gain or oedematous changes noticed --> Inj. FRUSEMIDE, Inj. CA GLUCONATE (10%) were given and K+ was Restricted in IVF Repeat K^+ showed further increase[On 26.05.2007 at 7:30 pm K^+- 8.4 mEq/L] --> Inj. HUMAN REGULAR INSULIN with 10% Dextrose IV bolus and Maintenance given --> [Serum K+, Na+, Ca++ and Capillary Blood Sugar (CBS) were monitored with regular interval, ECG was Within Normal Limits] --> [On 27.05.2007 at 9:00 am K+ was 5.3 mmol/L] --> On 27.05.2007 at 6:45 pm had sudden Apnoeic Spell [HR-108/m] --> Immediately Resuscitated [PPV with Bag & Mask ventilation given for 6 minutes] --> Spontaneous Respiration started --> [Serum K^+ at 7:00 pm was 4.9 mEq/L] --> Nasal CPAP given --> Continuous cardiac monitoring was done--> Also Received Inj. RANITIDINE [$D_{6\text{-}14}$] --> General condition of the patient improved --> Gavage feeding with Expressed Breast Milk [EBM] initiated --> Tolerated --> Increase --> Breast feeding [BF]gradually established--> On D_{15} of life shifted to Step down unit --> Weight gaining on Exclusive BF started --> At the time of discharge the patient is clinically stable and asymptomatic.

Brief Clinical Discussion and Case analysis

Definition

The normal serum potassium level in a non-haemolyzed blood specimen at normal pH is 3.5-5.5 mEq/l; symptomatic Hyperkalaemia may have begun at a serum K level higher than 6 mEq/L.

In our case, the patient showed very high level of serum K [7.2 mEq/l on 26.05.2007 and 8.4 mEq/l on 27.05.2007]. By rechecking the procedure and technique of sample collection we tried to exclude all possible causes of pseudohyperkalaemia with best of our knowledge.

Major Predisposing Factors

Table 2. Anthropometric Assessment		
Date	**25.05.07**	**08.06.07**
Weight [gm]	2607	2779
Length [cm]	50	50
HC [cm]	34.5	35
CC [cm]	31	30

Pseudohyperkalaemia: Laboratory error or Haemolyzed specimen.

Decreased Potassium Clearance: Acute Renal Failure, Oliguria, Congenital Adrenal hyperplasia [CAH].

Increased Potassium Release Secondary To Tissue Distraction: Asphyxia, Hypoxia, Sepsis, Intraventricular haemorrhage [IVH], Hypothermia, Trauma, Cephalhaematoma, Intra/ Extra vascular Haemolysis, Burn, Major Surgery.

Redistributive Causes: Metabolic Acidosis, Hyperosmolarity Beta-Blockers, Cardiac Glycosides, Insulin Deficiency. Excessive potassium Load: Intravenous potassium replacement.

Our patient had adequate urine output,and no specific history of perinatal asphyxia, Birth trauma obtained, maintained body temperature 370C-37.50C in a thermo neutral environment, CAH and Iatrogenic causes were also excluded. Investigations were clinically correlated which was suggestive of early onset septicaemia [EOS]. Severe Hyperkalaemia in this particular case is most likely in the background of EOS.

Basic Principles of Therapeutic Measures

The pharmacologic therapy in newborn consists of three major components as in older children:

1. **Stabilization of Conducting Tissue:** Administration of intravenous calcium gluconate.
2. **Dilution and Intracellular Shift of K^+:** Rapid administration of intravenous of sodium bicarbonate. Insulin Glucose Drip [bolus and maintenance with careful monitoring of capillary blood sugar].
3. **Enhanced Potassium Excretion:** Diuretic Therapy: with intravenous Frusemide. Kayaxelate [i.e. ion exchange resin]. Peritoneal Dialysis.

We followed the same guideline regarding the management of Baby of Rekha Kar, by offering the best-possible available Modalities [P*lease see the Neonatal Vignette for Details*]. He was successfully discharged from our unit.

Advice at Discharge

1. Exclusive breast feeding for 6 months.
2. Complete Immunization as per schedule, plus all pulse polio.
3. Keep the baby warm by proper wrapping. and maintain hygiene.
4. Attend follow-up clinic on Monday or Thursday at 9 A.M after 15 days, or even earlier, if needed, in Emergency or in Paediatric Out-Patient Department.

Date of Discharge: 08.06.2007; **Time of Discharge:** 12:00 noon.

Follow-Up Clinic Evaluation

Being a NCU Graduate Baby of Rekha Kar, beside attending the routine second week after discharge review to our clinic also completed scheduled check-ups for six consecutive months [as per hospital protocol presently we conduct an essential F U C assessment up to six months of age]. His Trevandrum Developmental Screening Score [a simplified neuro-developmental assessment system analogous to Denver Screening Test] was at per with age. Weight gaining and incremental increase in Head Circumference [HC] and Length [L] was highly satisfactory. The baby was exclusively breast-fed, and at six months of age complementary feeding started with semi-solid diet consisting of: rice, dal [lentil soup] and potato puree. Now the nine and half months old healthy, playful child got a new name of his own, RAUNAK, which means flamboyance.

References

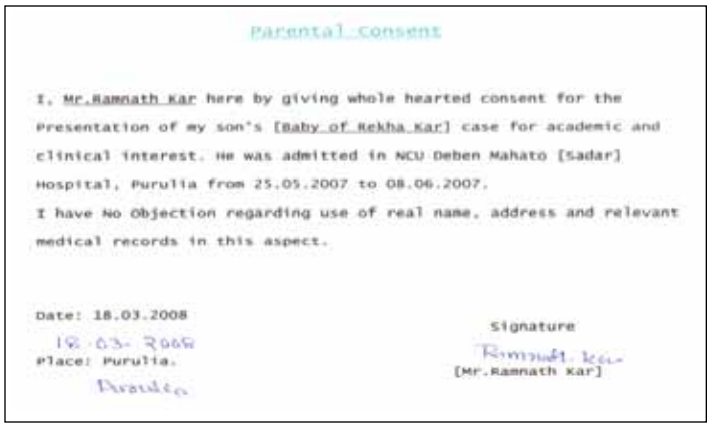
- John P. Cloherty, Eric C. Eichenwald, Ann R .Stark. Manual of Neonatal Care, Chapter 9, pp 110-111 [Patricia W. Lin and Charles F. Simmons Jr.] Fluid and Electrolyte Management. Lippincott Williams & Wilkins. Philadelphia, USA, 2004.
- Klaus and Fanaroff. Care of The High Risk Neonate, Chapter 6, Part One: Electrolytes, pp 149-150, Fifth Edition, Harcourt (India) Private Limited, New Delhi, India, 2001.
- Monica Cheesbrough. District Laboratory Practice in Tropical Countries, Part I. Clinical Chemistry Test 6.10 Measurement of sodium and Potassium in serum or plasma. pp369-370, Cambridge University Press, UK, 1999.
- The Northern Neonatal Pharmacopoeia (11th Edition), Neonatal Formulary, Compiled by The Northern Network, p134, Prism Books Pvt Ltd, Bangalore, India [copyright: BMJ Books London, UK, 2000].

- Jayashree Mondkar, Ranjan Kumar Pejavar. National Neonatology Forum, Manual of Neonatology. Chapter 19, pp 146-150, Fluid and Electrolyte balance, Prism Books Pvt Ltd, Bangalore, India. First Edition 2004.
- Lalitha Krishnan. Practical Neonatal Care. Chapter 50, Hyperkalemia. pp 196-199.Orient Longman. 2002.
- Kanya Mukhopadhyay. Anil Narang. Protocols in Neonatology. Fluids and Electrolytes. pp 149-157 Division of Neonatology. Department of Paediatrics PGIMER, Chandigarh, Pakeeza Printers, India, Second Edition, 2003.
- Suraj Gupte. Text Book of Neonatal Emergencies, Chapter 50, pp 333-339 Fluid, Electrolyte and Acid-Base Therapy, PeePee Books, India, First Edition, 2006.
- Suraj Gupte. Recent Advances in Paediatrics. Special Volume 12. Neonatal Emergencies. Fluid, Electrolyte and Acid –Base Balance and its Distribution, Chapter 30, pp 366-367, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, India, First Edition 2003.
- Dipak K Guha. Guha's Neonatology Principles and Practice. Volume II, Chapter 59, Fluid and Electrolyte Metabolism and Therapy, pp 622-623, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi, India, Third Edition 2005.

Medico Ethical Perspective

††Parental Consent is obtained on 18.03.2008 for Case Presentation for clinical and academic interest [Scanned document below].

Acknowledgements



Parental consent

I, Mr.Ramnath Kar here by giving whole hearted consent for the Presentation of my son's [Baby of Rekha Kar] case for academic and clinical interest. He was admitted in NCU Deben Mahato [Sadar] Hospital, Purulia from 25.05.2007 to 08.06.2007.
I have No Objection regarding use of real name, address and relevant medical records in this aspect.

Date: 18.03.2008
18-03-2008
Place: Purulia.

Signature
[Mr.Ramnath Kar]

Department of Health & Family Welfare, Government of West Bengal, created this sparkling new and modern 'Newborn Care Unit' at Deben Mahato Sadar Hospital [Purulia District Hospital] in 2003.

The project was also supported by UNICEF, Purulia Zilla Parishad [i.e. The District Council of Purulia] and Society for Applied Studies [a Scientific Research Organization recognized by the Ministry of Science & Technology, Government of India].

We are thankful to all of them for their kind patronage. Otherwise, it would not have been possible to render a helping hand, not only to Baby of Rekha Kar, but innumerable sick newborns seeking (near) Level II Neonatal Care at the Peripheral set-up of this remote world.

The authors express heartfelt gratitude to the former colleagues [who were the fountain heads of this unit], Superintendent of Purulia District Hospital, the past and present Chief Medical Officer of Health, Association of Health Service Doctors, District Health & Family welfare Society and Department of Neonatology SSKM Hospital [The apex neonatal care institution amidst the Government set up in the province of West Bengal] for their continuous support to this unit since its inception.

We would also like thank the parents of Raunak [Baby of Rekha Kar] for having their confidence in us, and always being cooperative.

Our journey apparently seemed to be a simple one, but is not that easy to narrate. Before we end from the core of our heart, we must appreciate the untold relentless efforts of the all Nursing Staffs, Newborn Aides, Paramedical staffs, Group D employees and Sweepers without which the quintessential visage of Community Newborn Care would have remained incomplete forever.

NT

Corresponding Author

Sutirtha Roy, MD Physician
Neonatal Care Unit,
Deben Mahato [Sadar] Hospital
[Purulia District Hospital],
Main Road, Purulia,
Postal index Code: 723101
West Bengal, India

sutirtharoy@hotmail.com

Sudipta Das, MBBS
Neonatal Care Unit,
Deben Mahato [Sadar] Hospital
[Purulia District Hospital],
Main Road, Purulia,
Postal index Code: 723101
West Bengal, India

Pradip Kumar Bhakat, MBBS, DVD
Neonatal Care Unit,
Deben Mahato [Sadar] Hospital
[Purulia District Hospital],
Main Road, Purulia,
Postal index Code: 723101
West Bengal, India

Medical News, Products and Information

Genetic Disorder Gives Clues to Autism, Epilepsy, Mental Retardation

Newswise — A rare genetic disorder called Tuberous Sclerosis Complex (TSC) is yielding insight into a possible cause of some neurodevelopmental disorders: structural abnormalities in neurons, or brain cells. Researchers in the F.M. Kirby Neurobiology Center at Children's Hospital Boston, led by Mustafa Sahin, MD, PhD, and Xi He, PhD, also found that normal neuronal structure can potentially be restored.

If this could be done safely in humans, it might be possible to ameliorate the symptoms of epilepsy, mental retardation and autism, which are frequent complications of TSC, say the researchers. Their findings, accompanied by commentary, were the cover article of the September 15 issue of Genes & Development.

TSC causes benign tumor-like lesions, which can affect every organ in the body and are called tubers when they occur in the brain. In the study, Sahin, He, lead author Yong-Jin Choi, PhD, and colleagues show in mice that when the two genes linked to the disease, TSC1 and TSC2, are inactivated, neurons grow too many axons (the long nerve fibers that transmit signals). Normal neurons grow just one axon and multiple dendrites (short projections that receive input from other neurons). This specification of axons and dendrites, known as polarity, is crucial for proper information flow.

"We think if initial polarity is not formed properly, the result will be abnormal connectivity in the brain," says Sahin, who also directs the clinical Multi-Disciplinary Tuberous Sclerosis program at Children's.

Since autism occurs in about half of people with TSC, the findings support the idea that such miswiring causes or contributes to autism, Sahin adds. He has received funding from Autism Speaks, the Manton Foundation and the Tuberous Sclerosis Alliance to pursue this idea further.

"People have started to look at autism as a developmental disconnection syndrome – there are either too many connections or too few connections between different parts of the brain," Sahin says. "In mouse models of TSC, we're seeing an exuberance of connections."

In laboratory experiments, the researchers were able to limit multiple axon formation by using the cancer drug rapamycin to suppress production of a protein called SAD-A kinase. This protein is produced in excess when the TSC1 and TSC2 genes are inactivated, and is found in abundance in the abnormally large cells that make up tubers.

Because increased SAD-A is associated with increased axon growth, the researchers also speculate that the TSC pathway could be manipulated to regenerate or repair axons lost or damaged in spinal cord or other nerve injuries.

"These findings provide a potential explanation for neurological abnormalities in TSC patients and perhaps in people without TSC," says He. "The challenge remains as to how to treat these conditions. We have some clues but a lot more research needs to be done."

The study was funded by grants from the Tuberous Sclerosis Alliance, the Manton Foundation, the Hearst Fund and the National Institutes of Health.

The paper can be downloaded free of charge at: http://genesdev.cshlp.org/cgi/content/abstract/22/18/2485?ijkey=949b2a5281a96ef468052b08e52e9cab65db1470&keytype2=tf_ipsecsha.

News Media Often Do Not Report Potential Sources of Bias in Medical Research

An analysis of news media coverage of medical studies indicates that news articles often fail to report pharmaceutical company funding, and frequently refer to medications by their brand names, both potential sources of bias, according to a study in the October 1, 2008 issue of *JAMA*.

New articles represent an important source of medical information for many patients, and even some physicians. "An increasingly recognized source of commercial bias in medical research is the funding of studies by companies with a financial interest in the results," the authors write. Little is known about how frequently news articles report the funding sources of the medical research they report on, or how frequently news articles use brand medication names instead of generic names, which could create commercial bias.

Michael Hochman, MD, of the Cambridge Health Alliance and Harvard Medical School, Cambridge, MA, and colleagues reviewed US news articles from newspaper and online sources about pharmaceutical-funded medication studies to determine how frequently and prominently they indicate the funding source, and how often they refer to medications by their brand vs. generic names. The studies were published in five major general medical journals (*JAMA, New England Journal of Medicine, Lancet, Archives of Internal Medicine and the Annals of Internal Medicine*). The researchers also surveyed editors at the 100 most widely circulated newspapers in the US about their publications' practices on the reporting of company funding, and the use of generic medication names.

The authors identified 306 news articles, of which 175 were from newspapers and 131 were from online sources. Among the 306 news articles about company-funded medication studies, the funding source for the studies was not reported in 42% of the articles. There was no significant difference in non-reporting rates between articles obtained from newspaper and online sources. Of the 306 news articles, 277 concerned medications with both generic and brand names. Among these 277 articles, 38% used only brand names and 67% used brand names in at least half of the medication references.

The survey of newspaper editors found that 88% indicated that his/her publication often, or always reported company funding in articles about medical research, and that 77% reported that they often, or always referred to medications by the generic names in articles about medical research. Three percent of editors indicated that their publication had a written policy stating that company funding should be reported in articles about medical research, while the editor at 2% of newspapers responded that his/her publication had a written policy stating that medications should be referred to predominantly by their generic names.

However, the editors' perceptions diverged from their publications' actual performances. A total of 104 newspaper articles were analyzed from publications for which editors reported always identifying company funding. Of these articles, 45% failed to cite company

funding. Additionally, a total of 75 newspaper articles were analyzed from publications for which the editors reported always using generic names. Of these articles, 76% used brand names in at least half of the medication references.

"Our findings raise several concerns. For patients and physicians to evaluate new research findings, it is important that they know how the research was funded, so they can assess whether commercial biases may have affected the results. Additionally, the use of generic medication names by the news media is preferable so that physicians and patients learn to refer to medications by their generic names, a practice that is likely to reduce medication errors and may decrease unnecessary health care costs," the authors write.

JAMA. 2008;300[13]:1544-1550.

Community-Based Behavior Change Management Cuts Neonatal Mortality in Half

Newswise — A community-based program that reinforces basic childbirth and newborn care practices can reduce a baby's risk of death within the first month of life by as much as 54%, according to a study in rural India led by researchers at the Johns Hopkins Bloomberg School of Public Health in collaboration with CSM Medical University in Lucknow, India. The study is published in the September 27, 2008 issue of The *Lancet.*

"Changes in behavior such as preparing for the birth and skin-to-skin care to keep the baby warm, breastfeeding and infection prevention practices were found to significantly reduce neonatal mortality," said Gary Dramstadt, MD, the senior author and principal investigator of the study, who led the research while at the Bloomberg School of Public Health but is now Senior Program Officer for Neonatal Health with the Bill & Melinda Gates Foundation. "This was a unique experiment that tested a delivery model of preventive practices co-developed with community members. This was essentially a community-driven program that aimed to empower them to save the lives of their own babies," added Vishwajeet Kumar, MBBS, a researcher with the Bloomberg School's Department of International Health and first author and co-principal investigator of the study.

The randomized trial was conducted in Uttar Pradesh state, where 25% of India's 1 million annual neonate deaths occur. More than 80% of infant deliveries took place in the home and away from the formal health care system. As part of the study, the researchers worked with community members to develop simple, culturally relevant messages to reinforce healthy birth preparedness and clean delivery, hygienic umbilical cord care, skin-to-skin care (holding the baby close against the mother's chest), breast feeding and keeping the baby warm.

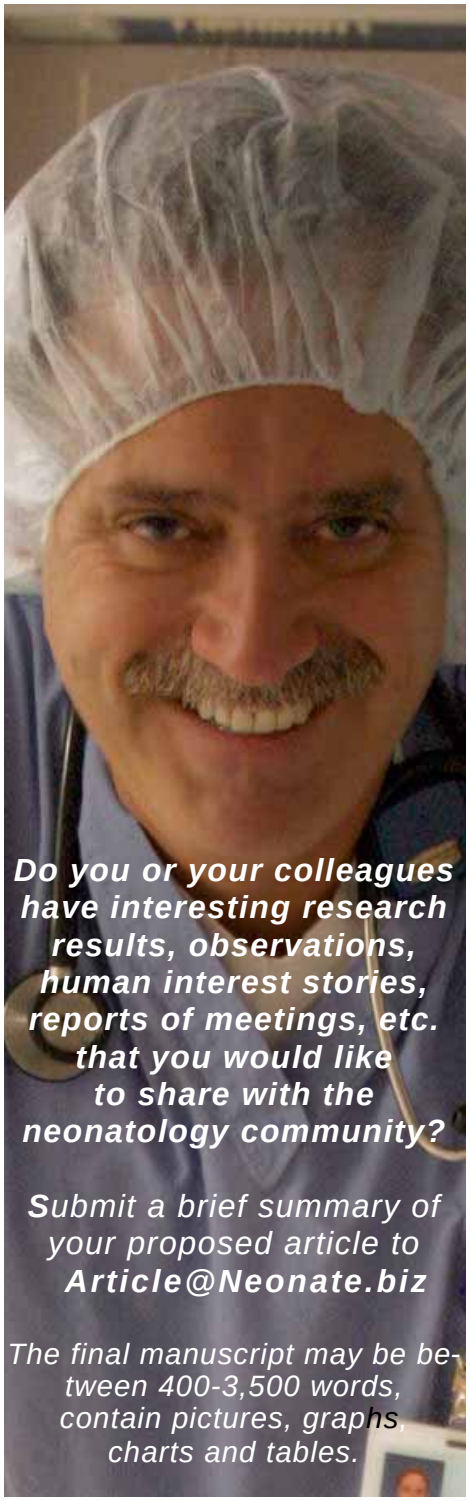
Community health workers, with support from community volunteers, worked with pregnant women, their family members and key community members through a series of home-visits and community meetings. The behavior change messages were incorporated by the community into traditional folk songs, which served to further promote the practices and change social norms.

Compared to a control group that received the basic governmental and non-governmental organization services offered in the region, villages that received the intervention saw a 54% reduction in infant deaths during the first month following birth. A second group, which received the same intervention, plus a liquid crystal hypothermia indicator to help monitor the baby's temperature, had a 52% reduction in neonatal deaths.

"This study adds to a growing body of evidence that community engagement to ensure the survival of newborns and acceptance of specific changes in care practices can substantially reduce mortality in the very vulnerable first month of life," said Robert Black, MD, co-author of the study, and chair for the Bloomberg School's Department of International Health.

"The study findings validate the ongoing efforts by USAID to reduce newborn mortality through community-based strategies where health workers provide essential newborn care and promote good family care practices during the postnatal period," said Kent Hill, Assistant Administrator for Global Health, US Agency for International Development. "Even in settings where health systems are weak, we can improve dramatically the lives of newborns."

Other authors of "Effect of community-based behavior change management on neonatal mortality in Shivgrah, Uttar Pradesh, India: a cluster-randomised controlled trial" include: Saroj Mohanty, Aarti Kumar, Mathuram Santosham, Shally Awasthi, Abdullah H. Baqui, Pramod Singh, Vivek Singh, Ramesh C. Ahuja, Jai Vir Singh, Gyanendra Kumar Malik, Saifuddin Ahmed and Mahendra Bhandari. Funding was provided by *USAID* and *Save the Children-USA* through a grant from the *Bill & Melinda Gates Foundation.*



Study Examines How Doctors Discuss Medical Errors

Newswise — We can learn from our mistakes, but how willing are we to talk about

FEBRUARY MEETING FOCUS

NEO – The Conference for Neonatology
February 26- March 1, 2009; Lake Buena Vista, FL USA
www.neoconference.com

Register: *www.signupcenter1.com/registration/neo/welcome.asp*
Questions? Call (330) 425-9330 or email neo@experient-inc.com

Theme Focus: Neonatal Clinical Quality Improvement Pre-Conference; The First 3 Days of Life in the NICU; Informatics in the NICU; Hematological Concerns in the NICU; Seminars in Neonatology and Neonatal-Perinatal Care; Nutritional Care of the Complex / Surgical Patient; The Neonatal Brain

Course Topics and Workshops:
- NICU Informatics
- Mechanical Ventilation: New Modes of Treatment
- Diagnosis and Management of Neutropenia in Neonates
- Thrombocytopenia in NICU: More Common Than You Think
- "To give or not to give:" Transfusion Therapy in Sick Neonates
- Blood Pressure Control and Treatment of the Sick Neonate
- The Child With Congenital Heart Disease
- Post-Discharge Nutritional Considerations in the NICU Patient
- Neuroimaging in Neonatology:Sometimes Newer is Better
- Seizure Recognition and Control
- Adjunctive Bedside Monitoring of the Neonatal Brain: The Role of Cerebral Function Monitoring
- Neonatal Cooling: Picking the Right Patient
- Beyond Cooling: Therapies and Potential Therapies for HIE
- Breast Milk Feeding of the Complex NICU Patient
- The Case for Quality Improvement
- Surfactant Administration
- Oxygen Targeting and ROP Prevention
- CQI Workshop I: Getting Started-Creating a CQI Team
- Selecting a Project-Realistic Goal Setting
- The Case for Quality Improvement
- And much more….

Faculty Includes: Namasivayam Ambalavanan, MD; David Adamkin, MD; Eduardo Bancalari, MD; John Barks, MD; Robert Christensen, MD; Reese Clark, MD; Willa Drummond, MD; Dan Ellsbury, MD; Tracy Karp, MS, NNP-BC; Matthew Laughon, MD; Christophe Lehmann, MD; Carolyn Lund, RN, MSN; Paula P. Meier, RN, DNSc; Laura Ment, MD; Matthew A. Saxonhouse, MD; Mark Scher, MD; Marshall Schwartz, MD; Joseph Schneider, MD; Istvan Seri, MD, PhD; Philip Sherman, MD; Augusto Sola, MD; Martha Sola-Visner, MD; Alan R. Spitzer, MD; Ronald G. Strauss, MD; Sandra Sullivan,MD; Patti Thureen, MD; Robert Ursprung, MD; Michael Weiss, MD; Mervyn C. Yoder, MD, and others….

them? And what happens when those making mistakes are physicians, who are often expected to be infallible?

A new University of Iowa study shows that most general practice doctors in teaching hospitals are willing to discuss their own patient care errors with colleagues, but about one in four are not. At the same time, nearly nine-of-ten doctors said that if they wanted to talk about a mistake, they knew a colleague who would be a supportive listener. The findings are reported in the October 1, 2008 issue of the *Journal of Medical Ethics*.

The results suggest that it is important to ensure that learning occurs not just in the person who made the mistake, but also among their peers, said the study's lead author, Lauris Kaldjian, MD, PhD, Associate Professor of Internal Medicine at the UI Roy J. and Lucille A. Carver College of Medicine.

"Discussing medical errors can be a form of professional learning for doctors. Mistakes should be considered shared commodities and used for all they're worth," said Kaldjian, who also is director of the college's program in Bioethics and Humanities. "The findings also point to some challenges for physicians seeking emotional support after making an error."

The study results were based on surveys of 338 faculty and resident physicians at teaching hospitals in the US. Previously published findings by Kaldjian and colleagues, based on the same data set, showed that doctors' actual communication of medical errors to hospitals and patients seems to occur less than it should when compared to physicians' positive attitudes about communicating such errors.

The two earlier studies also found that the more serious the outcome or harm from a hypothetical error, the more likely a doctor said they would communicate it to patients or hospitals. Similarly, the current study used hypothetical scenarios to reveal the likelihood of doctors discussing an error that results in no harm at 77%, minor harm at 87%, and major harm at 94%.

Kaldjian pointed out there is much value in sharing all errors. "Sometimes you make a mistake and nothing happens. Other times, something bad happens," he said. "But in both cases, we need to focus on the mistake because near-misses -- where no harm was done -- are also valuable learning tools."

The most harmful types of errors trigger automatic institutional reviews. However, other errors may not. "Along with helping improve patient care, discussing both types of medical errors can provide important opportunities for learning and emotional support for physicians," Kaldjian said. "However, the formal settings in which shared learning takes place are unlikely to be optimal for providing the individual support needed by the physician who made the mistake.

"Physicians can go through a lot of turmoil when they make a mistake, even if it hasn't caused serious harm to a patient. "While there are some formal group settings in the profession for learning from

mistakes, emotional support may require the privacy and reassurance that are found in one-on-one conversations with trusted colleagues," he added.

More than half of the physicians in the study (57%) said they had tried at least once to promote the value of discussing errors by discussing one of their own errors in front of students or physicians in training.

"It's encouraging that physicians try to be role models, especially for medical students and younger physicians, and some hospitals even have peer-support teams to help physicians in the aftermath of an error, though such teams appear to be rare," Kaldjian said.

Kaldjian also noted that doctors who consider themselves their "own worst critic" and do not discuss their errors with others lose out on additional perspectives.

"There can be wisdom and comfort in the words of our colleagues, especially when we have reason to trust their insights," he said. "Medical science also encourages an investigative attitude about errors and can motivate us to be as objective as possible about errors and their circumstances without denying the profound need for emotional support."

Overall, Kaldjian said, increased discussion of errors amongst medical professionals is extremely important for professional learning and emotional support. Such discussions may also help physicians encourage each other to disclose errors to patients as part of patient care and to report them to institutions to improve patient safety.

The study was funded by *the Robert Wood Johnson Foundation's Generalist Physician Faculty Scholars Program* through a grant to Kaldjian.

The investigation involved researchers with the Center for Research in the Implementation of Innovative Strategies in Practice at the Department of Iowa City Veterans Affairs Medical Center; Hospital of St. Raphael in New Haven, Conn.; Yale University School of Medicine; and Penn State College of Medicine and Hershey Medical Center.

New Test Could Help Catch Serious Infections in Babies

Newswise — A simple blood test may help detect serious bacterial infections (SBIs) like urinary tract infections and blood stream infections in young infants who come to the Emergency Department (ED) with fevers that have no clear cause. Researchers at Children's Hospital Boston, collaborating with investigators at George Washington University, show that a new diagnostic marker called procalcitonin can help identify infants at high risk for SBIs while potentially reducing unnecessary and aggressive testing, medication and hospitalization in low risk infants. The study, published in the October *Pediatrics*, is the first to examine procalcitonin as a tool for evaluating infant fever in an emergency situation.

The researchers used a novel procalcitonin test, recently approved by the FDA, in 234 feverish babies under 3 months of age, of whom 18% had definite or possible SBIs confirmed by independent clinical criteria. The results showed that procalcitonin not only detected all cases of SBIs in feverous infants but proved sensitive enough to establish a threshold value that would identify infants at low risk for serious infections. Indeed, its overall performance as a single clinical marker of infection approached that of current strategies that involve a variety of laboratory tests and clinical evaluations.

In the United States, infant fever accounts for a vast majority of pediatric visits to the ED, of which up to 20% of cases have no identifiable cause of infection. While most turn out to be minor and self-limiting illnesses, a proportion of infants have SBIs such as bacteremia, meningitis, pneumonia or urinary tract infections. The risk is most significant in infants under 3 months of age.

“About 12% of those whom we consider ‘well appearing’ end up having serious infections when we do an evaluation,” said Richard Bachur, MD, Acting Chief of Emergency Medicine at Children’s.

Because clinicians cannot reliably determine which children with fever have more serious infections, many babies end up undergoing extensive evaluations. Routine evaluation of infants less than 3 months of age includes blood tests, urine tests, and often a lumbar puncture for spinal fluid, followed by treatment in the hospital with antibiotics.

Prompted by the inefficiency of current fever management in young infants, Bachur and colleagues have sought a rapid diagnostic test that will determine which children have serious infections at the first visit to the ED. “We hope to identify those infants that are at very low risk of serious infection and tailor their evaluation so as to minimize invasive testing and exposure to unnecessary antibiotics,” said Bachur.

The high sensitivity of the new procalcitonin test has allowed Bachur and colleagues to establish realistic cut-off values to help guide clinicians in identifying children who are at low risk for SBIs.

The researchers are now looking to do a multi-center study to evaluate the use of procalcitonin on a larger scale. If it proves to be valuable, Bachur hopes it will become a standard tool for the evaluation of young infants with fever.

The study was supported by the Frederick H. Lovejoy, Jr, MD, Resident Research Fund and the American Academy of Pediatrics Resident Research Grant. The biomarker assay, procalcitonin (PCT), is available to clinicians, and manufactured by Brahms Diagnostica.

Pediatricians More Likely to Disclose Medical Errors That are Apparent to Families

A survey of pediatricians found wide variation in whether and how they would disclose medical errors to patients and their families, and may be less likely to share information about errors that are less obvious to parents, according to a report in the October 2008 issue of *Archives of Pediatrics & Adolescent Medicine*, one of the *JAMA*/Archives journals.

Parents want to be told when an error occurs in their child's care, but such disclosure does not always occur, according to background information in the article. "Disclosing an error to one or both parents, and possibly to the child as well, may prove to be an exceptionally challenging conversation," the authors write.

In a survey conducted by David J. Loren, MD, of the University of Washington School of Medicine, Seattle, and colleagues, 205 pediatricians (out of 369, a 56% response rate) answered 11 questions about one of two scenarios. In the first, the pediatrician administered an overdose of insulin that resulted in the child's admission to the intensive care unit—an error deemed apparent to the family. The second scenario involved failure to follow up on a child's laboratory test, which resulted in an infection and hospitalization. This error was considered less obvious to parents.

A total of 176 pediatric attending physicians and 29 trainees responded to the survey. Of these:

- 79% described either error as serious, and 83% said they would feel very or extremely responsible.
- 44% would be concerned that their reputation would be damaged by the error, and 34% believed it was likely to result in a lawsuit.
- 53% would definitely disclose the error, 40% would probably do so, and 7% would disclose only if asked by the parent.
- 46% would use the word "error" when disclosing, 26% would include an explicit apology acknowledging the harm caused to the child, and 50% would explain detailed plans for preventing future errors.
- Compared with those who received the lab test scenario, twice as many who received the apparent error scenario would disclose the error (73% vs. 33%), and more would offer an explicit apology (33% vs. 20%).

Disclosing pediatric medical errors may be complicated because of the need to accommodate children's varying levels of understanding, the authors note. In addition, the view of children as helpless, the lack of information about how an error will affect long-term physical and intellectual development, and the long statute of limitations for harm to a child may affect pediatricians' disclosure decisions.

"In conclusion, the relationship among a pediatrician, a child and a family is steeped in trust, a commodity that can be significantly diminished by the occurrence of a medical error," the authors write. "Nevertheless, parents have clearly articulated a desire to be told about errors in the medical care of their children. This study demonstrated marked variation in when and how pediatricians might disclose medical errors, and found that they may be less likely to disclose an error that was less apparent to the family. Further research on the impact of professional guidelines and innovative educational interventions is warranted to help diminish the disparity between patient preferences for disclosure and current professional behavior."

(*Arch Pediatr Adolesc Med*. 2008;162[10]:922-927.

CORRECTION - October 2008 Issue:

October 2008 lead article, entitled, "Echocardiographic Markers of a Haemodynamically Significant Ductus Arteriosus" *by Arvind Sehgal, MD and Patrick J. McNamara, MD*

On page 3, Table 1, in the large DUCT column, the data should read as follows:

LVSTI 0.24 ± 0.07
E/A > 1.5
LVO/SVC 4.5 ± 0.6

Please see the electronic version of the newsletter for the fully corrected Table 1.
www.neonatologytoday.net/newsletters/nt-oct08.pdf

NEONATOLOGY TODAY

ISSN: 1932-7129 (print); 1932-7137 (online).
Published monthly.

FREE Subscription - Qualified Professionals
Neonatology Today is available free to qualified medical professionals worldwide in neonatology and perinatology. International editions available in electronic PDF file only; North American edition available in print. Send an email to: SUBS@Neonate.biz. Include your name, title(s), organization, address, phone, fax and email.

Contacts and Other Information
For detailed information on author submission, sponsorships, editorial, production and sales contact, send an email to INFO@Neonate.biz.

To contact an Editorial Board member, send an email to: BOARD@Neonate.biz putting the Board member's name on the subject line and the message in the body of the email. We will forward your email to the appropriate person.

Sponsorships and Recruitment Advertising
For information on sponsorships or recruitment advertising call Tony Carlson at 301.279.2005 or send an email to RECRUIT@Neonate.biz.

Meetings, Conferences and Symposiums
If you have a symposium, meeting or conference, and would like to have it listed in Neonatology Today, send an email to: MEETING@Neonate.biz. Include the meeting name, dates, location, URL and contact name.

Corporate Offices
9008 Copenhaver Drive, Ste. M
Potomac, MD 20854 USA
Tel:+1.301.279.2005; Fax: +1.240.465.0692

Editorial and Subscription Offices
16 Cove Road, Ste. 200
Westerly, RI 02891 USA
www.NeonatologyToday.net

STAND OUT

There are plenty of positions to go around, but the best choices go fast. **TIVA HealthCare** Placement Specialists have the industry knowledge, relationships and resources to help you secure a rewarding career.

STAND OUT FROM THE REST - Let **TIVA** help you GET NOTICED!

TIVA HealthCare™

Physician Trained Placement Specialists

Anesthesiology • Children's Services • Emergency Medicine • Radiology

800.506.TIVA (8482)

LOCUM TENENS AND FULL-TIME PLACEMENT

www.**TIVAHealthCare**.com

What Is the First Step in the INOmax for Inhalation Reimbursement Process?

ICD-9 00.12

If your facility administers INOmax, reporting ICD-9 00.12 is important because…

- ICD-9 00.12 is the procedural code assigned to identify the administration of inhaled nitric oxide
- ICD-9 00.12 provides tracking data for payers that may affect current and future reimbursement levels
- ICD-9 00.12 may reduce claims-processing delays associated with miscellaneous HCPCS[a] or CPT[b] codes
- ICD-9 00.12 may trigger contractual payment mechanisms

[a] HCPCS, Healthcare Common Procedure Coding System.
[b] CPT, current procedural terminology.

 IMK111-00937

Next Steps…

Contact your hospital information management group to confirm that they are identifying and coding the administration of inhaled nitric oxide with ICD-9 00.12.

Reach out to your local sales representative for additional reimbursement services.

Call 1-877-KNOW-INO (1-877-566-9466) to learn more and be put in touch with a national account manager.

INOtherapy Reimbursement Service: 1-877-KNOW-INO (1-877-566-9466) or reimbursement@inotherapy.com.

INOmax® (nitric oxide) FOR INHALATION