

## NICU Family Support Center Maria Fareri Children's Hospital

Maria Fareri Children's Hospital at Westchester Medical Center welcomed the launch of the *March of Dimes NICU Family Support Center* on September 15, 2010. The Center was made possible by the generous donation of the Cramer family, who committed funding for the start-up and sustainability of the Center for the next 8 years. Depicted are the Cramers; Doug and wife Erica, with daughters Jessica and Rachel as they cut the ribbon during the Center's launch event. The event, held in the Naomi and Isaac Kaplan Family Regional Neonatal Intensive Care Unit (NICU) preceded the hospital's 28th Graduate Reunion Party.

Maria Fareri Children's Hospital has been a long-standing partner of the Northern Metro Division of the March of Dimes. In fact, the hospital's Chief of Newborn Medicine and Director of the Regional Neonatal Center, Edmund F. La Gamma, MD, is a former March of Dimes Basil O'Connor Research Scholar, and New York State Chapter Volunteer of the Year. Dr. LaGamma sits on the Division's board and program services committee and has facilitated the hospital's \$10,000 March for Babies sponsorship for the last 3 years.

The Center in the NICU at Maria Fareri is the fourth in the state of New York and among 42 that provide online and print resources and comfort to families in Level II and III NICUs across the country.



*Pictured are Erika and Doug Cramer cutting the NICU Family Support Center ceremonial ribbon with daughters, Jessica and Rachel.*

We are interested in providing you with a newsletter that is relevant and of interest to you. Please contact us with perinatal topics you would like to see addressed.

For a copy of our newsletter or to be placed on our mailing list, contact us by phone or e-mail.

Please visit <http://www.worldclassmedicine.com/RPC> for information about the Regional Perinatal Center at the Maria Fareri Children's Hospital at Westchester Medical Center and to locate other issues of *The Perinatal Gazette*.

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# The Perinatal Gazette

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## 9th Annual Regional Perinatal Conference

The 9th Annual Hudson Valley Regional Perinatal Forum (RPF) conference: "Preventing Late Preterm Births and Unnecessary Cesarean Deliveries: How to Reach the Public Using Social Health Marketing" hosted by The Regional Perinatal Center (RPC) at Maria Fareri Children's Hospital/Westchester Medical Center (WMC), The Lower Hudson Valley and Maternal Infant Services Perinatal Networks focused on non-medically indicated inductions and c-sections and the affects on women and infants. The conference was held at the Marriot Westchester in Tarrytown and was attended by 265 health, medical and human services professionals from the seven county Hudson Valley Region.

Edmund LaGamma, MD, Chief, Division of Newborn Medicine at Maria Fareri Children's Hospital at WMC presented "A Review of Hudson Valley Regional Cesarean Rates and the Impact of Cesarean Sections on Preterm and Late Preterm Newborns." Dr. LaGamma highlighted parallels between rising cesarean rates and the average gestation for a term pregnancy shifting from 40 weeks in 1992 to 39 weeks in 2003. He pointed out a change in belief among medical providers and consumers that late preterm deliveries (36-38 6/7 wks.) were safe for mothers and newborns. Dr. LaGamma stated that "the cesarean rate is linked to the increases in late preterm births over the last 10 to 15 years". To improve perinatal health outcomes, Dr. LaGamma emphasized the need for continued education of men and women of childbearing age regarding lifestyle choices that contribute to preterm births (e.g. smoking, drug abuse, and unmanaged stress)—and health care providers the consequences of choosing early delivery with no clear medical indication.

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## The Growing Burden of Clostridium Difficile Infection

*Raji Senguttuvan, MD, Boriana Parvez, MD*

*Clostridium Difficile (C.Diff)* is a spore forming, obligatory anaerobic, gram positive bacillus and one of the 120 species in the genus *Clostridium*. It is very ubiquitous and is acquired from the environment through fecal-oral transmission. The spores are acid resistant and can transverse the stomach, colonizing the colon. *C. Diff* overgrowth is facilitated when the normal intestinal flora is disrupted by antibiotic therapy. Hospitals, nursing homes and child care centers are major reservoirs. There are 22 different toxin producing types with some toxinotypes being more virulent than others. *Clostridium* species are pathogenic in a wide variety of mammals. Incidence and severity of disease varies according to host species, age, environmental density of spores, toxin type, antibiotic use and other factors.

*C. Diff* was first isolated in the stool of healthy newborns in 1935. In 1978 it was identified as the primary cause of antibiotic associated Pseudo-membranous colitis (PMC). The clinical manifestations are called *Clostridium Difficile Infection (CDI)*. But *C Diff* can cause a spectrum of clinical presentations from asymptomatic colonization to severe diarrhea, PMC, toxic megacolon, colonic perforation and death. There are a number of virulence factors which contribute to adherence and colonization, including flagellar proteins, surface-layer proteins, and surface-exposed adhesion proteins.

The disease manifestations in humans are related to the action of 2 toxins: Toxin A and Toxin B (TcdA, TcdB). The genes for the 2 toxins are encoded on a pathogenicity locus (PaLoc) along with negative and positive regulators of their expression. PaLoc is carried by pathogenic strains. Toxin A binds to carbohydrate structures (particularly Gal-1, 3-Gal-1, 4-GlcNAc) that are present on a diverse range of molecules including both Ig and non-Ig components of human milk. Toxin B receptors have not been identified; only speculation what they might be. Toxins A and B disrupt cell signaling by inactivating small GTP-binding proteins, which include Rho, Rac, and Cdc42. By glucosylating small GTPases, TcdA and TcdB cause actin condensation and cell rounding and cell death. TcdA elicits effects primarily within the intestinal epithelium, while TcdB has a broader cell tropism.

In adults, symptoms of CDI include watery diarrhea with 15-30 bowel movements per day, abdominal cramps, lower quadrant abdominal pain (~22%), low grade fever (~28%), leukocytosis (~50%) and low albumin. Gross blood in the stool is rare. The traditional risk factors for CDI include admission to ICU, age >60 years, current antibiotic therapy, current immunosuppressive therapy, delivery without clear medical indication or little consideration of the consequences.

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Howard Blanchette, MD, Chief, OB at WMC provided a compelling discussion of the effects cesarean deliveries have on women in his presentation "The Rising Cesarean Delivery Rate in America – What are the Consequences?" Dr. Blanchette stressed that cesarean sections be performed only when medically indicated—stating that maternal morbidity and mortality rises with each subsequent cesarean surgery. Citing several published studies, Dr. Blanchette added that the most effective way to deter non-medically indicated (elective) c-sections is to inform women and their family members of the effects of repeat cesarean deliveries on their future reproductive health. Dr. Blanchette strongly suggested a change in practice among many modern obstetricians from "once a section always a section" to "once a section, always a TOLAC [Trial of Labor, After Cesarean] delivery".

Stephanie Sosnowski, ICCE, CLC; Deputy Director, Maternal-Infant Services Network, Orange, Sullivan and Ulster Counties, Inc.; Chair of the New York Statewide Breastfeeding Coalition & Hudson Valley Regional Perinatal Forum Breastfeeding Committee presented, "A Call to Action: Improving Breastfeeding Initiation and Duration in the Hudson Valley." Ms. Sosnowski discussed public health initiatives in support of breastfeeding such as the NYS Department of Health's Breastfeeding Promotion Initiatives, CDC's Breastfeeding: A National Public Health Priority Statement, the Academy of Breastfeeding Medicine's Policy Recommendations, and the Joint Commission's latest definition of exclusive breastfeeding.

Keynote speaker Alan Andreasen, PhD, MS, Professor of Marketing, Georgetown University, McDonough School of Business, began by saying "Sixty to seventy percent of medical problems are due to behavioral challenges and every program that deals with behavior has to tackle the behavioral problem." Professor Andreasen added that influencing change demands focus—not only on the target population in need of change—but also the decision-makers who influence action. Decision-makers may include government regulators and legislators, school and human services administrators, and financial partners.

Dr. Andreasen noted that the private sector spends billions of marketing dollars to get consumers to make behavioral changes. Two of the greatest challenges facing the public health sector relative to getting the public to make behavioral changes are 1: understanding what the public believes is necessary to enable making those changes and 2: bringing social pressure to bear on the issue. The afternoon Keynote speaker, Julia Kish-Doto, PhD, MS, posed the question "How can we expose more women and men to normal, uncomplicated vaginal births?" According to Dr. Kish-Doto utilizing social media, where the average age of texters is 35, can impact positive communication among the child-bearing demographic. The recent trend is women using this form of social media during labor and delivery to communicate their birth experience with family and friends in real time. Dr. Kish-Doto aptly asked "how can we encourage women to use social media to broadcast positive birth experiences?" Research from the Health Information National Training Survey suggests that the child-bearing age population obtains health information from their "influential" social media using peers.

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## Consider This...

Are you interested in networking with people from all over New York State to improve perinatal health? Do you believe you have the wisdom to share effective perinatal care practices—or influence health care policy based on your experience?



Interested in making personal connections with perinatal health providers throughout New York State? Then perhaps you should consider becoming a member of the **New York State Perinatal Association**.

### Mission:

The **New York State Perinatal Association (NYSPA)** is a state-wide alliance of health and human service professionals and consumers concerned about perinatal health issues from pre-conception through early childhood. NYSPA advocates for optimal perinatal care and parenting, promotes education and research, influences state priorities, and encourages a multi-cultural and multi-disciplinary approach to maternal and child health.

### Purpose:

To promote the well-being of prospective mothers, infants and communities; and to promote perinatal education throughout the State of New York.

### Benefits of belonging to NYSPA:

- Access to health information and resources for your organization and employees.
- Maximize utilization of perinatal resources in New York State and your community.
- Proactive involvement in decision-making processes and strategic planning concerning maternal/child health, at state and local levels.
- Outreach and education for your employees.
- Linkages with health and human service providers.
- Recognition as a community partner.

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NYSPA is a member of the National Perinatal Association.

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*C. Diff* is commonly associated with use of broad spectrum such as 3rd generation cephalosporins but has been reported with almost all antibiotics. Prudent prescribing of antibiotics is critical in curtailing the burden of disease. CDI in adults is suspected if clinically significant diarrhea, defined as 3 or more loose stools per day for at least 1 to 2 days is present. However judicious use of *C. Diff* testing is important because *C. Diff* colonization state may be common.

The Infectious Diseases Society of America (IDSA) and the Society for Hospital Epidemiology of America (SHEA) have established guidelines for diagnosing *C. Diff* infection based on the detection of toxin A or B in stool filtrates. A toxin-specific enzyme-linked immunosorbent assay (ELISA) is most often used with sensitivity of 70- 80% and specificity of >97%. Detection of cytotoxin B in diarrheal stool filtrates with tissue-culture cytotoxicity assay is regarded as the gold standard for diagnosis and is thought to be the most sensitive test, but the results may take up to 3 days. The glutamate dehydrogenase test, which detects a common antigen, has a sensitivity of 70 – 80% and specificity of <90%. Stool culture should be performed only for epidemiologic purposes. Laboratories are increasingly developing real-time PCR diagnostics for *C. Diff* detection that targets TcdB and has a sensitivity of > 90% and specificity of >97.

The reported incidence of CDI has been on the rise in North America in the last 10 years. This may be partially due to increase in testing but data from the National Hospital DC Database shows a true increase in *C. Diff* infection as a primary diagnosis. The best epidemiologic data comes from the Quebec outbreak with 14,000 cases in 3 years, involving a new and more potent strain – the NAP1 strain. Since the year 2000 there have been many reports of outbreaks caused by the hypervirulent strain BI/ NAP1/ 027, based on REA/ PFGE/PCR nomenclature, which has a mutation in its pathogenicity locus resulting in excess and sustained toxin production. Additionally, it is extremely concerning that CDI is now being increasingly reported in previous low-risk patient populations such as healthy individuals with no history of recent hospitalization, peripartum mothers, pediatric patients and neonates.

Asymptomatic colonization with toxin or non toxin producing *C. Diff* is common in neonates. The *C. Diff* spores are acquired by the neonate from the environment, and the carriage rate has been reported to range from 15 to 70%. However association with GI symptoms and necrotizing enterocolitis in preterm neonates has been reported in literature. These findings assume a greater significance in the current setting of the changing epidemiology of this organism. It is important to remember that alcohol-based sanitizing agents—widely used in hospitals, nursing homes and in the community, have no effect on the spores of this organism. It is possible that recent changes in the patterns of *C. Diff* colonization and disease in the community is [possibly] due to these hand sanitizers as antibiotic prescribing.

The outcome of CDI and the curtailing of its prevalence depends on early diagnosis and prudent antibiotic administration. In hospital settings, once the index case is identified, it is paramount to implement "*C. Diff* Bundle" consisting of: dedicated equipment, contact isolation, and strict hand hygiene practices. It is not necessary to perform a test of cure. Asymptomatic carriers do not require treatment. Initial CDI can be treated with PO metronidazole along with close

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monitoring for development of complications. Vancomycin PO is used for severe and complicated CDI. While metronidazole is appropriate for 1<sup>st</sup> recurrence, vancomycin is used for 2<sup>nd</sup> and 3<sup>rd</sup> recurrence. Treatment is usually continued for 10 -14 days.

In summary, the patterns of *C. Diff* colonization and disease in hospital and outpatient settings are changing. There are concerns that CDI may soon overtake MRSA as the most common hospital acquired infection. Previously low risk patient groups such as non-hospitalized adults, children, peripartum mothers and neonates, are experiencing increased reports of CDI. It is conceivable that the wide use of antibiotics and alcohol-based hand sanitizers are contributing to the "community *C. Diff*. overgrowth"—and is serving as the new reservoir of the disease.

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Continued from page 2. – RPC Conference

The final session, "The Development of a Regional Perinatal Forum Social Health Marketing Campaign for the Hudson Valley Region" presented by Janine Lewis, MPH of Practice Matters, outlined the process being implemented in the region to learn what opinion leaders and women 18–44 believe about full term pregnancy; related risks and benefits of vaginal versus cesarean deliveries, and what influences them in this decision-making process. This project has been commissioned by the RPC at Maria Fareri Children's Hospital/ WMC and is being coordinated by Dr. Heather Brumberg, MD, MPH, FAAP, co-chair of the RPF in collaboration with the Lower Hudson Valley Perinatal Network and Maternal-Infant Services Network which together serve seven counties in the Hudson Valley Region. Focus groups with consumers are underway in Rockland, Orange, and Westchester counties in collaboration with the two Perinatal Networks.

In closing, Caren Fairweather, Executive Director of Maternal-Infant Services Network, summarized the challenges and opportunities by posing several questions: "Based on what we have learned today how will our singular organizations respond locally, and how will we coordinate our responses as a region to achieve the Regional Action Plan goal of reducing non-medically indicated inductions and cesarean deliveries? How will we engage the consumer (men and woman of childbearing age and their families) using social media and marketing before they find themselves in the delivery room?" Once the data from the focus group results is analyzed, and the primary issues identified a strategic plan focused on how to address the issues will be developed.

For photos and posting of conference presentations please go to: [www.worldclassmedicine.com/rpc](http://www.worldclassmedicine.com/rpc)