

DUKE UNIVERSITY MEDICAL CENTER

**CURRICULUM VITAE
for
Permanent Record and the
Appointments and Promotions Committee**

Date Prepared: February 12, 2015

Name Charles Michael Cotten, M.D. M.H.S

Primary Academic Appointment: Associate Professor

Primary Academic Department Department of Pediatrics
Division of Neonatology

Present Academic Rank and Title: Associate Professor

Date and Rank of First Duke Faculty Appointment: June 1999: Clinical Associate in Pediatrics

Medical Licensure: North Carolina License #: 96-00035
Date of License: January 1996

Specialty Certification(s) and Dates: American Board of Pediatrics, Renewal in Neonatal –
Perinatal Medicine: 1/1/2008
American Board of Pediatrics: Renewal in General
Pediatrics: 12/23/2008

Date of Birth: June 12, 1959 **Place** Jackson, Mississippi. USA

Citizen of: USA **Visa Status** N/A

<u>Education</u>	<u>Institution</u>	<u>Dates</u>	<u>Degree</u>
High School	Bishop Kenny High School	9/73 - 5/77	
College	University of Notre Dame Notre Dame, Indiana	9/77 - 5/81	B.A.
Graduate School	Florida State University Tallahassee, Florida	9/81 - 5/82	
Medical School	University of Miami Medical School Miami, Florida	9/82 - 5/86	M.D.
Graduate School	Duke University Durham North Carolina	8/99 – 5/06	M.H.S. Clinical Research

Professional Training and Academic Career

<u>Institution</u>	<u>Position/Title</u>	<u>Dates</u>
Jackson Memorial Hospital University of Miami Miami, Florida	Intern/Resident in Pediatrics	7/86 – 6/89
Floating Hospital for Children Tufts University Boston, Massachusetts	Neonatology Fellowship	7/89 – 7/93
Mt Auburn Hospital Cambridge, Massachusetts	Clinical Instructor in Pediatrics Harvard Medical School	8/93 – 10/95
Carolinas Medical Center Charlotte, North Carolina	Clinical Assistant Professor of Pediatrics University of North Carolina	12/95 – 11/98
Salem Hospital Salem, Massachusetts	Clinical Instructor in Pediatrics Harvard Medical School	12/98 – 5/99
Duke University Medical Center Durham, North Carolina	Clinical Associate in Pediatrics Assistant Clinical Professor Pediatrics Associate Professor in Pediatrics Tenure awarded, Track 1	6/99 – 4/03 4/03 – 12/07 12/07- present 10/13 -present

Publications:

Refereed Journals:

1. Benjamin DK Jr, Miller WC, Garges H, Benjamin DK, McKinney RE Jr, **Cotton [sic] M**, Fisher RG, and Alexander K. Bacteremia, Central Catheters and Neonates: When to Pull the Line, *Pediatrics* 2001;1076-1272-1276
2. Benjamin DK Jr., DeLong ER PhD, Steinbach WJ, **Cotton [sic] CM**, Walsh TJ, and Clark R. Empirical Therapy for Neonatal Candidemia in Very Low Birth Weight Infants *Pediatrics* 2003; 112(3 Pt 1):543-7.
3. Benjamin DK Jr. DeLong ER, **Cotten CM**, Garges HP, Clark RH. Mortality following blood culture in premature infants: increased with gram-negative bacteremia and Candidemia, but not gram-positive bacteremia. *Journal of Perinatology* 2004;24:175-180.
4. Benjamin DK Jr, DeLong ER, **Cotten CM**, Garges HP, Clark RH. Postconception age and other risk factors associated with mortality following gram-negative rod bacteremia. *Journal of Perinatology* 2004;24:169-174
5. **Cotten CM**, Oh W, McDonald S, Fanaroff A, Duara S, Lupton A, Carlo W, Stoll B, Poole K, Wright L, Goldberg R., Predictors of Prolonged Hospital Stay (PHS) for Extremely Low Birth Weight (ELBW) Risk-Adjusted Center Differences in Prolonged

Hospital Stay Among Extremely-Low-Birth-Weight Infants. *Journal of Perinatology* 2005;25: 650-655

6. Shankaran S, Laptook A, Ehrenkranz R, Tyson J, McDonald S, Donovan E, Fanaroff A, Poole K, Wright L, Higgins R, Finer N, Carlo W, Duara S, Oh W, **Cotten CM**, Stevenson D, Stoll B, Lemons J, Guillet R, Jobe A. Whole-body hypothermia for neonates with hypoxic-ischemic encephalopathy. *NEJM* 2005; 353:1574-84
7. Smith PB, **Cotten CM**, Garges HP, Tiffany KF, Lenfestey RW, Moody MA, Li JS, Benjamin DK Jr., A comparison of neonatal Gram-negative rod and Gram-positive cocci meningitis. *Journal of Perinatology* 2006; 26:111-114
8. Guillet R, Stoll B, **Cotten CM**, Gantz M, McDonald S, Poole W, Phelps D. Association of H2 Blocker Therapy and Higher Incidence of Necrotizing Enterocolitis in Very Low Birthweight Infants. *Pediatrics* 2006; 117: e137-e142.
9. Garges HP, Moody MA, **Cotten CM**, Smith PB, Tiffany KF, Lenfestey R, Li JS, Fowler VG Jr., Benjamin DK Jr. Neonatal Meningitis: What is the correlation between CSF cultures, blood cultures and CSF parameters? *Pediatrics* 2006; 117:1094-100.
10. Lally KP, Bagolan P, Hosie S, Lally PA, Stewart M, **Cotten CM**, Van Meurs KP, Alexander G and the Congenital Diaphragmatic Hernia Study Group Corticosteroids for Fetuses with Congenital Diaphragmatic Hernia – Can We Show Benefit? *Journal of Pediatric Surgery* 2006; 41:668-74.
11. Benjamin DK, Schelonka R, White R, Holley HP, Bifano E, Cummings J, Adcock K, Kaufman D, Puppala B, Riedel P, Hall B, White J, **Cotton [sic] CM**. A blinded, randomized, multicenter study of an intravenous Staphylococcus aureus immune globulin. *Journal of Perinatology* 2006;26:290-295
12. Chamnas K, Malcolm WF, Gaca A, Fieselmann K, **Cotten CM**. Intestinal Malrotation in Neonates with Non-bilious Emesis. *Journal of Perinatology*, 2006; 26: 375-377.
13. **Cotten CM**, Ginsburg GS, Goldberg RN, Speer MC. Genomic analyses in neonatology. *Journal of Pediatrics* 2006; 148:720-726
14. **Cotten CM**, McDonald S, Stoll B, Goldberg RN, Poole K and Benjamin DK Jr. Cephalosporins, Empirical Antimicrobial Use and Center Variance in Incidence of Neonatal Candidiasis, *Pediatrics* 2006;118:717-22.
15. Smith PB, Steinbach WJ, **Cotten CM**, Schell WA, Perfect JR, Walsh TJ, Benjamin DK Jr Caspofungin for the treatment of azole resistant candidemia in a premature infant. *J Perinatol* 2007 27: 127-129
16. Cohen-Wolkowicz M, Smith PB, Mangum B, Steinbach WJ, Alexander BD, **Cotten CM**, Clark RH, Walsh TJ, Benjamin DK Jr. Neonatal *Candida* meningitis: significance of cerebrospinal fluid parameters and blood cultures *J Perinatol* 2007 27: 97-100
17. Malcolm WF, Lenfestey RW, Rach E, Goldberg RN, **Cotten CM**. Dietary Fat For Infants With Enterostomies. *J Pediatr Surg.* 2007;42:1811-5.
18. Logan JW, Rice HE, Goldberg RN, **Cotten CM**. Congenital diaphragmatic hernia: A systematic review and summary of best evidence practice strategies. *J Perinatol.* 2007;27:535-49.

19. Lenfestey RW, Smith PB, Moody MA, Clark RH, **Cotten CM**, Seed PC, Benjamin DK Jr. Predictive value of cerebrospinal fluid parameters in neonates with intraventricular drainage devices. *J Neurosurg.* 2007;107:209-12.
20. Malcolm WF, Gantz M, Martin RJ, Goldstein RF, Goldberg RN, **Cotten CM**, for the NICHD Neonatal Research Network. Anti-reflux Medications (ARM) at NICU Discharge for Extremely Low Birthweight (ELBW) Infants. *Pediatrics* 2008;121:22-7
21. **Cotten CM**, Taylor S, Stoll B, Goldberg RN, Hansen NI, Sanchez P, Ambalavanan N, Benjamin DK Jr, for the NICHD Neonatal Research Network. Prolonged Initial Empirical Antibiotics are Associated with Increased Necrotizing Enterocolitis and Mortality in Extremely Low Birthweight Infants. *Pediatrics.*2009; 123: 58-66. PMID:PMC2760222
22. Yang Q, Smith PB, Goldberg RN, **Cotten CM**. Dynamic Change of Fecal Calprotectin in Very Low Birth Weight Infants during the First Month of Life. *Neonatology.* 2008;94:267-271.
23. Greenberg RG, Smith PB, **Cotten CM**, Clark RH, Benjamin DK, Jr, Traumatic Lumbar Punctures in Neonates: Test Performance of CSF WBC Count. *Pediatric Infectious Disease Journal*, 2008;27:1047-51. PMID: 18989240 PMID: PMC2730657
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25. Thornburg CD, Smith PB, **Cotten CM**, Benjamin DK Jr., Association between Thrombosis and Bloodstream Infection in Neonates with Peripherally Inserted Catheters. *Thrombosis Research*, 2008;122:782-5.
26. Smith PB, Garges HP, **Cotton [sic] CM**, Walsh TJ, Clark RH, Benjamin DK Jr., Meningitis in Preterm Neonates: Importance of Cerebrospinal Fluid Parameters. *American Journal of Perinatology*, 2008; 25:421-6. PMID2715150
27. Smith PB, Benjamin DK Jr., **Cotten CM**, Schultz ED, Guo R, Nowell L, Smithwick ML, Thornburg CD, Is an increased dwell time of a peripherally inserted catheter associated with an increased risk of bloodstream infection in infants? *Infection Control and Hospital Epidemiology* 2008; 29:749-53.
28. Morris BH, Oh W, Tyson JE, Stevenson DK, Phelps DL, O'Shea TM, McDavid GE, Perritt RL, Van Meurs KP, Vohr BR, Grisby C, Yao Q, Pedroza C, Das A, Poole WK, Carlo WA, Duara S, Laptook AR, Salhab WA, Shankaran S, Poindexter BB, Fanaroff AA, Walsh MC, Rasmussen MR, Stoll BJ, **Cotten CM**, Donovan EF, Ehrenkranz RA, Guillet R, Higgins RD; NICHD Neonatal Research Network. Aggressive vs. conservative phototherapy for infants with extremely low birth weight. *N Engl J Med.* 2008;359:1885-96.
29. Malcolm WF, Smith PB, Mears S, Goldberg RN, **Cotten CM**. Transpyloric tube feeding in very low birthweight infants with suspected gastroesophageal reflux: impact on apnea and bradycardia. *Journal of Perinatology.*2009; 29:372-5.
30. Kuluz M, Smith PB, Mears SP, Benjamin JR, Tracy ET, Williford L, Goldberg RN, Rice HE, **Cotten CM**. Preliminary Observations of the Use of High-Frequency Jet Ventilation

as Rescue Therapy in Infants with Congenital Diaphragmatic Hernia. *Journal of Pediatric Surgery*. 2010;45:698-702

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34. Katakam LI, **Cotten CM**, Goldberg RN, Dang CN, Smith PB. Safety and Effectiveness of Indomethacin versus Ibuprofen for Treatment of Patent Ductus Arteriosus. *Am J Perinatol*. 2010;27:425-9.PMCID: PMC 2877168
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38. Maldonado RS, Izatt JA, Sarin N, Wallace DK, Freedman S, **Cotten CM**, Toth C. Optimizing Hand-Held Spectral Domain Optical Coherence Tomography Imaging for Neonates, Infants and Children. *Invest Ophthalmol Vis Sci*. 2010;51(5):2678-85.
39. Wynn JL, Seed PC, **Cotten CM**. Does IVIg administration yield improved immune function in very premature neonates? *J Perinatol*. 2010. 30(10):635-42.
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41. **Cotten CM**, Shankaran S. Hypothermia for hypoxic-ischemic encephalopathy. *Expert Rev Obstet Gynecol*. 2010;5:227-239. PMCID2897079
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43. Dang CN, Katakam LI, Smith PB, **Cotten CM**, Goldberg RN, Chandler N, Thornburg CD, Bidegain M. Recombinant activated factor VIIa treatment for refractory hemorrhage in infants. *J Perinatol*. 2011;31:188-92.PMCID: PMC2972386

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47. Greenberg RG, Benjamin DK Jr, Cohen-Wolkowicz M, Clark RH, **Cotten CM**, Laughon M, Smith PB. Repeat lumbar punctures in infants with meningitis in the neonatal intensive care unit. *J Perinatol.* 2011 31:425-9. PMID:21164430 PMC3103623
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49. Maldonado RS, Freedman SF, **Cotten CM**, Ferranti JM, Toth CA. Reversible retinal edema in an infant with neonatal hemochromatosis and liver failure. *J AAPOS.* 2011;15:91-3.
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51. Maldonado RS, O'Connell RV, Sarin N, Freedman SF, Wallace DK, **Cotten CM**, Winter KP, Stinnett S, Chiu SJ, Izatt JA, Farsiu S, Toth CA. Dynamics of Human Foveal Development after Premature Birth. *Ophthalmology.* 2011; 118:2315-25.
52. LaTuga MS, Ellis JC, **Cotton [sic] CM**, Goldberg RN, Wynn JL, Jackson RB, Seed PC. Beyond Bacteria: a Study of the Enteric Microbial Consortium in Extremely Low Birth Weight Infants. *PlosOne* 2011;6:e27858. PMC3234235
53. Wynn JL, Tan S, Gantz MG, Das A, Goldberg RN, Adams-Chapman I, Stoll BJ, Shankaran S, Walsh MC, Auten KJ, Miller NA, Sánchez PJ, Higgins RD, **Cotten CM**, Smith PB, Benjamin DK Jr; the NICHD Neonatal Research Network. Outcomes

Following Candiduria in Extremely Low Birth Weight Infants. *Clin Infect Dis*. 2012;54:331-9. PMID: 22144537

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55. Malcolm WF, **Cotten CM**. Metoclopramide, h(2) blockers, and proton pump inhibitors: pharmacotherapy for gastroesophageal reflux in neonates. *Clin Perinatol*. 2012;39:99-109.
56. Tripathi N, **Cotten CM**, Smith PB. Antibiotic use and misuse in the neonatal intensive care unit. *Clin Perinatol*. 2012;39(1):61-8.
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58. Smith PB, Ambalavanan N, Li L, **Cotten CM**, Laughon MM, Walsh MC, Das A, Bell EF, Carlo WA, Stoll BJ, Shankaran S, Laptook AR, Higgins RD, Goldberg RN, on behalf of the GDB Subcommittee for the NICHD Neonatal Research Network. Impact of Center Approach to Infants Born at 22–24 Weeks' Gestation on Outcomes of Infants Born at 25–27 Weeks' Gestation. *Pediatrics* 2012;129:e1508-e1516 PMC3362905
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61. Liao Y, **Cotten M**, Tan S, Kurtzberg J, Cairo MS. Rescuing the neonatal brain from hypoxic injury with autologous cord blood. *Bone Marrow Transplant*. 2013;48:890-900.
62. Benjamin JR, Gustafson KE, Smith PB, Ellington KM, Tompkins KB, Goldberg RN, **Cotten CM**, Goldstein RF. Perinatal Factors Associated with Poor Neurocognitive

Outcome in Early School Age Congenital Diaphragmatic Hernia Survivors. *Journal of Pediatric Surgery* 2013;48:730-7.

63. Katsanis N, **Cotten M**, Agrist M. Exome and genome sequencing of neonates with neurodevelopmental disorders. *Future Neurology* 2012;7:655–658
64. Boghossian NS, Page GP, Bell EF, Stoll BJ, Murray JC, **Cotten CM**, Shankaran S, Walsh MC, Laptook AR, Newman NS, Hale EC, McDonald SA, Das A, Higgins RD, for the Eunice Kennedy Shriver NICHD Neonatal Research Network. Late-Onset Sepsis in Very Low Birth Weight Infants from Singleton and Multiple Gestation Births. *Journal of Pediatrics* 2013; 162:1120-4, PMC3633723.
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67. Wynn J, Lei L, **Cotten CM**, Phelps DL, Shankaran S, Goldberg RN, Carlo WA, Van Meurs K, Das A, Vohr BR, Higgins RD, Stoll BJ, D’Angio CT for the NICHD Neonatal Research Network. Blood stream infection is associated with altered heptavalent pneumococcal conjugate vaccine immune responses in very low birth weight infants. *Journal of Perinatology* 2013;33:613-8 PMC3722279
68. Wynn JL, Hansen NI, Das A, **Cotten CM**, Goldberg RN, Sanchez PJ, Bell EF, Van Meurs KP, Carlo WA, Laptook AR, Higgins RD, Benjamin DK Jr, Stoll BJ; Eunice Kennedy Shriver National Institute of Child Health and Human Development Neonatal Research Network. Early sepsis does not increase the risk of late sepsis in very low birthweight neonates. *Journal of Pediatrics* 2013;162:942. e1-3. PMC3622770
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71. Alleman B, Bell E, Li L, Dagle J, Smith PB, Ambalavanan, Laughon M, Stoll BJ, Goldberg R, Carlo W, Murray J, **Cotten C**, Shankaran S, Walsh M, Laptook A, Ellsbury DL, Hale E, Newman N, Wallace D, Das A, Higgins, Rosemary. Individual and Center-Level Factors Affecting Mortality Among Extremely Low Birth Weight Infants *Pediatrics.* 2013;132:e175-84. PMC3691533

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73. **Cotten CM**, Goldstein, McDonald S, Goldberg R, Salhab W, Carlo W, Tyson J, Finer N, Walsh M, Ehrenkranz R, Lupton A, Guillet R, Schibler K, Van Meurs K, Poindexter B, Stoll B, O'Shea T, Duara S, Das A, Higgins R, Shankaran S. Apolipoprotein E (APOE) Genotype and Outcome in Infants with Hypoxic-Ischemic Encephalopathy (HIE). *Pediatr Res* 2014;75(3):424-30 PMC4095992
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75. Phelps DL; Ward RM; Williams RL; Watterberg KL; Lupton AR; Wrage LA; Nolen TL; Fennell TR; Ehrenkranz RA; Poindexter BB; **Michael Cotten C**; Hallman MK; Frantz ID 3rd; Faix RG; Zaterka-Baxter KM; Das A; Bethany Ball M; Michael O'Shea T; Backstrom Lacy C; Walsh MC; Shankaran S; Sánchez PJ; Bell EF; Higgins RD. Safety and Pharmacokinetics of a Single Intravenous Dose of myo-Inositol in Preterm Infants of 23 to 29 weeks. *Pediatr Res.* 2013 Dec;74(6):721-9. doi: 10.1038/pr.2013.162. Epub 2013 Sep 4. PMID24067395; PMC Journal-In Process.
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65. Courtney Thornburg, **C.M. Cotten**, Grier Page. Genetic Predictors of Brain Injury in Premature Infants EPAS2013:3822.344
66. **C.M. Cotten**, G. Page, R.F. Goldstein, The NICHD NRN. Apolipoprotein E, Intraventricular Hemorrhage (IVH) and Recovery in Extremely Low Birthweight (ELBW) Infants EPAS2013: 3832.510
67. J. Kleinert, R. Panchapakesan, R. Sista, S. Burde, V. Srinivasan, L. Katakam, C. Michael Cotten, R. Goldberg, V. Bhutani, V. Pamula. Evaluation of a Digital Microfluidic Platform for Point of Care Newborn Screening of Hyperbilirubinemia, Congenital Hypothyroidism and G6PD Deficiency in Emerging Programs. EPAS2013: 3836.598

68. R. Sista, T. Wang, N. Wu, C. Graham, A. Eckhardt, D. Bali, D. Millington, C. Michael Cotten, R. Goldberg, V. Pamula. Multiplex Digital Microfluidic Platform for Newborn Screening of Lysosomal Storage Disorders EPAS2013: 3836.599
69. K.C. Becker, C.P. Hornik, R.H. Clark, K.D. Hill, **M.C.[sic] Cotten**, P. Brian Smith. Enteral Feeding and Necrotizing Enterocolitis Risk in Infants with Congenital Heart Disease EPAS2013:3838.615
70. DeRienzo, P.B. Smith, A. Herman, D. Tanaka, **C.M. Cotten**. Transfusion-Associated Necrotizing Enterocolitis EPAS2013: 3838.624
71. K. Schibler, G. Page, **M. Cotten** Candidate Genes Associated with Necrotizing Enterocolitis in Extremely Low Birthweight Infants. EPAS2013:3838.649
72. J.K. Seigel, P.B. Smith, M. Bidegain, P.L. Ashley, C.C. Herbert, B.A. King, A.R. Maynor, S.J. Neill, **C.M. Cotten**. Early Administration of Oropharyngeal Colostrum to Extremely Low Birth Weight Infants. EPAS2013: 3840.696
73. James L. Wynn, Patrick C. Seed, **C. Michael Cotten**. Human Cathelicidin (LL-37) May Be Absent in Preterm Donor Milk and Is Highest in Colostrum EPAS2013:4512.210
74. Malowitz J, Riccio D, **Cotten CM**, McMahon T. S-Nitrosylated Hemoglobin F in Neonates. EPAS2014: 1534.583
75. Greenberg RG, Kandefer S, Smith PB, Wilson-Costello D, Stoll BJ, **Cotten CM** for the NICHD NRN. Late-Onset Sepsis in Extremely Premature Infants: Trends Over Time. EPAS2014:1540.641
76. Srinivasan L, Page G, Kirpalani H, Murray J, **Cotten CM** for the NICHD NRN. Genome Wide Association Study of Sepsis in Extremely Premature Infants. EPAS2014:1546.714
77. Hupp S, Greenberg R, **Cotten M**, Clark R, Laughon M, Hornik C, Watt K, Smith PB. Risk of Development of Severe Retinopathy of Prematurity in Very Low Birth Weight Infants. EPAS 2014:3848.790
78. Kleinert J, Castillo Cuadrado M, **Cotton CM**, Goldberg R, Katakam L, Bhutani VK, Pamula VK. Point-of-Care Newborn Screening Using Whole Blood for Hyperbilirubinemia and G6PD Deficiency: Results from a Clinical Evaluation Using Digital Microfluidics. EPAS2014:4111.240.
79. **Cotten CM**, Edwards L, Goldstein RF, Smith PB, Kurtzberg J. Hospital and One Year Outcomes After Autologous Cord Blood Infusion for Hypoxic-Ischemic Encephalopathy. EPAS2015: 3863.182

80. Worley G, Page G, Goldstein RF, **Cotten CM**, for the NICHD Neonatal Research Network. Multilocus Genetic Profiles and Outcomes of Extremely Low Birth Weight. EPAS2015: 3860.155
81. Pineda L, Araujo-Perez F, Ashley P, **Cotten CM**, Seed P. The Effect of Antacids on the Gastrointestinal Microbiome. EPAS2015: 4190.678
82. Jilling T, Ambalavanan N, **Cotten CM**, Martin CA, Maheshwari A, Schibler K, Page G. for the NICHD NRN. Identification of a Novel Gene Associated With Surgical Necrotizing Enterocolitis in Premature Infants EPAS2015:3770.5
83. Younge NE, Seed PC, **Cotten CM**, Goldberg R, Bain J, Newgard C, Ashley P. The Microbiome and Metabolome in Extremely Premature Infants With Postnatal Growth Failure. EPAS2015: 2912.505

Consultant Appointments:

Inhibitex IgG-CL-004 phase I/II trial	Data Safety Monitoring Board member; 2002 - 2003
Inhibitex IgG-CL-006 phase III trial	Data Safety Monitoring Board member; 2003 -2005
Cycled light in preterm infants RO1 NR 008044	Data Safety Monitoring Board Chair; 2003 - 2007
NICHD Neonatal Research Network Genomics Subcommittee	Consultant; 2003 -2011
GSK Phase IIb tocolytic study	Consultant for protocol development; 2006 - 2007
BD-Cath Evaluation of the BD OneCath™ Peripherally Inserted Central Catheter (PICC) in Pediatric Patients	Consultant for protocol development; 2006 – 2007
NIEHS	Consultant for Institutional Review Board; 2012

Organizations and Participation:

Fellow, American Academy of Pediatrics	1994 - present
AAP section on Neonatal/Perinatal Medicine	1995 - present
AAP section on International Health	1995 – present
Southern Society for Pediatric Research	2006 - 2007
Society for Pediatric Research	2006 - present
American Pediatric Society	2012 - present

Reviewer for:

Journal of Pediatrics	2002 - present
Pediatrics	2006 - present
American Journal of Perinatology	2006 - present
Journal of Pediatric Infectious Disease	2006 – present
Pediatrics International	2006 - present
Pediatric Research	2007; Editorial Board, Neonatology section, 2011 – present
Archives Diseases in Childhood	2010 - present
Archives of Pediatrics and Adolescent Medicine	2010 – present
American Journal of Obstetrics and Gynecology	2011 – present
New England Journal of Medicine	2013 – present
Pediatric Pulmonology	2013 – present
Developmental Neuroscience	2013 – present
Gastroenterology	2014 – present

Teaching Responsibilities Including Continuing Education:

Undergraduate lectures: Diversity Within: Annual Lecture for Bio Sci 111 Spring 2006 – present

NNP student teaching: RDS lecture; PPHN/CDH/High frequency ventilation lecture; annually

Resident teaching: Bedside teaching when on service

Fellow teaching: Bedside teaching when on service

Duke Intensive Care Nursery Nursing Advanced Core Curriculum

Director: Annual regional conference: Dialogues in Neonatal-Perinatal Medicine; 2001- present

Mentoring

Fellows:	Completed fellowship	Current Position
P Brian Smith MD MPH MHS	2007	Associate Professor, Duke University
Lakshmi Katakam MD MPH	2008	Assistant Professor UT-Houston
Jennifer Benjamin MD	2010	Assistant Professor, Tufts University
M. Susan Latuga MD MSPH	2011	Assistant Professor, Montefiore, Albert Einstein College of Medicine
Jonathan Seigel MD	2013	WakeMed Neonatology

Faculty

William Malcolm MD	Assistant Professor, Duke University
James Wynn MD	Assistant Professor, Vanderbilt University

PhD Dissertation Committees

Kimberly Allen, Duke School of Nursing 2010 - 2012

Invited Presentations at conferences.

Prenatal Steroids in the Surfactant Era, Current Issues in Newborn Care, Cambridge, MA April 1994

NO in the Neonate, North Carolina Perinatal Association 1996

Surfactant Replacement Therapy, Pediatric Grand Rounds, Carolinas Medical Center, 1996

Developmental Issues in the NICN, Charlotte Respiratory Therapy AHEC October 1996

Neonatal Pain Control, Pediatric Grand Rounds, Carolinas Medical Center, June 1997

Necrotizing Enterocolitis, Charlotte Respiratory Therapy AHEC, September 1997

Mechanical Ventilation and High Frequency Ventilation, Charlotte NNP AHEC, November 1997

AAP Recommendations for Breastfeeding, Mid – South Lactation Consultants Annual Meeting, January 1998

Pain Control in the NICN Patient, Carolinas Association of Neonatal Nurse Practitioners, May 1998

Follow-up Care of the VLBW NICN Graduate, Carolinas Health Care System Spring Symposium, May 1998

Update on Respiratory Distress Syndrome. Pediatric Grand Rounds, DUMC, June 2000

Congenital Diaphragmatic Hernia, Arriving at Consensus for Care, Neonatal Grand Rounds, DUMC, Series of 3, summer 2000

Group B Streptococcus Prevention, Review of CDC and AAP Guidelines, DRH Pediatric Grand Rounds, July 2001

Neonatal Transport, North Carolina Respiratory Care Society. September 2001

Pain and the Neonate, North and South Carolina Perinatal Society, October 2001

Pain and the Neonate, South Carolina AHEC, Florence South Carolina, February 2002

Pitfalls of Provider Profiling of Neonatal Outcomes. North Carolina Perinatal Society, March 2002

Pain and the Neonate and Group B Streptococcus update, South Carolina AHEC, Charleston, South Carolina, April 2002

Group B Strep Update, Northeast Regional Medical Center OB/Peds Conference, Concord, NC, April 2002

Charles M. Cotten, M.D.
October 1, 2006

New Research in Treatment for Perinatal Asphyxia, Angus McBryde Symposium, October 2002

Candidemia in High Risk Infants, NatalU electronic grand rounds:, with Daniel K. Benjamin Jr, November 2002

NICHD Study of Aggressive vs. Conservative Phototherapy for ELBW Infants. Pediatric Grand Rounds, DUMC, January 2003

Provider Profiling and Subgroup Analysis. Carolina Association of Neonatal Nurse Practitioners. April 2003.

New Research in Treatment for Perinatal Asphyxia, .Duke Outreach Conference, Maria Parham Hospital, Henderson, NC, April, 2003

Risk-Adjusted Center Differences in Odds of Prolonged Hospital Stay for ELBW Infants. Duke University Pediatric Research Symposium. Durham, NC, June 2003

Thrombophilias in Neonates. Dialogues in Neonatal-Perinatal Medicine, Durham, NC, September 2003

Development of an Anonymized DNA Bank and Anonymized Genomics Database for ELBW Infants, combined NICHD Maternal-Fetal Medicine and Neonatology Research Network Steering Committees, April 2004

Neonatology Update 2004; Angus McBryde Symposium May 2004

CDH Infants at Duke: Perinatal Conference UNC Obstetrics, Neonatology and Pediatric Surgery, May 2004

Duke Ophthalmology Chairman's Science Symposium: ROP in ELBW infants: Interaction of Growth Factors and Oxygen? May 2004

Duke Respiratory Therapy Education Seminar: Oxygen, ROP, and CLD in ELBW infants. October 2004

Pediatric Anesthesia Grand Rounds: Oxygen Friend and Foe. November 2004

Duke Pediatric Emergency Medicine Lecture: Neonatal Resuscitation. January 2005

Practice and Outcome Variation among Intensive Care Nurseries. Charlotte Perinatal Conference. February 2005.

Hypothermia for Hypoxic-Ischemic Encephalopathy. Obstetrics Grand Rounds, Durham Regional Hospital. March 2005

Hypothermia for Hypoxic-Ischemic Encephalopathy. North Carolina State Neonatology Conference. April 2005

Hypothermia for Hypoxic-Ischemic Encephalopathy. Greater Charlotte Neonatology Conference. October 2005

Hypothermia for Hypoxic-Ischemic Encephalopathy. NCNA Dialogues in Neonatal-Perinatal Medicine. April 2006

Genomics in Neonatology. Duke Institute for Genome Science and Policy Genomics at Four. October 2006.

Hypothermia for Hypoxic-Ischemic Encephalopathy. Neurology Resident Conference. February 2007

Antimicrobial Use in Extremely Low Birthweight Infants: Practice Variation and Impact on Outcomes. Cincinnati Children's Hospital Neonatology Clinical Research Conference. April 2007.

PDA Prophylaxis and Treatment: Duke Current Practice and Background. Neonatology Grand Rounds. University of Alabama, Birmingham. April 2007.

PDA Prophylaxis and Treatment Duke Current Practice and Background. Neonatology Grand Rounds. All Children's Hospital, St. Petersburg Florida. May 2007

Therapeutic Hypothermia. Pediatrix™ Quality Congress. Chicago, Illinois June 2007

Therapeutic Hypothermia for Neonates. Hypothermia World Congress; Cancun, Mexico December 2007

Panel member. Early Diagnosis and Prevention. Ethics in Cell Therapy Conference, sponsored by Duke Translational Medicine Institute, June 2008.

Microbes and Micropreemies. Pediatrics Grand Rounds. Duke University, September 2, 2008

Microbes and Micropreemies. Neonatology Forum. Charlotte, NC. October 2008

High Frequency Jet Ventilation in the NICU. Pediatric Respiratory Care Conference. Duke University. October 2008

Hypothermia for Hypoxic-Ischemic Encephalopathy: Perinatal Day, Appleton Wisconsin. November 2009

Antimicrobials In Preterm Infants: Use with Caution. Neonatology Pharmacology Conference. MUSC, Charleston, SC. November 2009

Neonatology Update: Edge of Viability Infants and New Treatments for Hypoxic Ischemic Injury. NC ACOG Annual Obstetrics Conference. April 2010.

Invited Lecturer, Singapore (KK Hospital, Singapore General Hospital, National University of Singapore Hospital): Autologous Cord Blood for HIE; Preventing BPD; Care of Infants with

Congenital Diaphragmatic Hernia; Antimicrobials and Necrotizing Enterocolitis. September 2010.

Autologous Cord Blood for Hypoxic-Ischemic Encephalopathy. California Institute of Regenerative Medicine workshop on Cerebral Palsy. June 2011.

Autologous Cord Blood for Hypoxic-Ischemic Encephalopathy. Cord Blood Forum, San Francisco California. June 2011.

Autologous Cord Blood for Hypoxic-Ischemic Encephalopathy. World Stem Cell Congress. Pasadena California, November 2011.

Medications Implicated in Necrotizing Enterocolitis. Pediatrix Quality Congress. San Diego, California. December 2011.

Autologous Cord Blood Cells for Hypoxic Ischemic Encephalopathy. Green Apples Section: Hot Topics in Neonatology, Washington, D.C. December 2011.

Invited Lecturer: Autologous Cord Blood Cells for Hypoxic-Ischemic Encephalopathy. Osaka-City University Hospital Neonatal-Perinatal Research Conference. March 2012.

Hold Those Antibiotics: The Need for Caution in Prolonged Use of Empiric Antibiotic Therapy in Premature Infants. State of the Science Session on Risk Factors for Necrotizing Enterocolitis. Pediatric Academic Society. Boston, Massachusetts. May 2012.

NICHHD Neonatal Research Network Genome Wide Scan. State of the Science Session on Genome Wide Scans in Neonatology. Pediatric Academic Society, Boston, Massachusetts. May 2012.

Autologous cord blood cells for HIE. Finishing Phase I and where to next? Annual Perinatal Day Symposium, Maria Ferari Children's Hospital, Valhalla, New York. May 2012

Antibiotic Duration. Neonatal Pharmacology Conference, Contemporary Forums, Washington, DC. June 2012.

Antimicrobial Coverage for Necrotizing Enterocolitis. Neonatal Pharmacology Conference, Contemporary Forums, Washington, DC. June 2012.

The Need for Caution in Empiric Use of Antibiotics in Premature Infants. Pediatric Grand Rounds. Rush University Department of Pediatrics. Chicago, Illinois. June 2012.

Genomics in Neonatology, Beginning the Harvest. Pediatric Grand Rounds, Yale University. October 2012

Antibiotics and the Association Between Duration of Treatment and Outcomes and Cooling and What Else? Can We Further Help Babies Using What We've Already Got? Neonatal Pharmacology Conference 2012, MUSC, November 2012

Neonatology Hot Topics. Duke Obstetrics Resident Conference. December 2012.

Preventing NEC. California Association of Neonatologists and AAP District IX Section on Perinatal Pediatrics. San Diego, California. March 2013.

Preventing NEC. Pediatric Grand Rounds, Montefiore Medical Center, Bronx, NY. March 2013

Autologous Cord Blood Cells for Hypoxic-Ischemic Encephalopathy, Clinical Trial update for the NICHD sponsored workshop: "Neonatal Encephalopathy and Hypoxic Ischemic Encephalopathy: Advancing the Science and Improving Outcomes." May 2013

Clinical Research Update. Neonatology Grand Rounds. Duke University, May 2013

Update on Hypothermia, Neurology Resident Conference, Duke University, October 2013

HIE Update, Obstetrics Grand Rounds, Durham Regional Hospital, October 2013

Cord Blood Stem Cells and Neuroprotection, Miami Neonatology 2013 Annual International Conference, November 2013

Antimicrobial Use and NEC, Miami Neonatology 2013 Annual International Conference, November 2013

Autologous Cord Blood for Hypoxic-Ischemic Encephalopathy, Phase I results. World Stem Cell Congress. San Diego, California, December 2013.

Southeastern Conference Conference on Perinatal Research, AAP Perinatal Section Fellows conference, Key Largo, Fla, February 2014. Moderator

ECMO update: A Neonatology Perspective on ECMO at Duke, March 2014.

Autologous Cord Blood Cells for HIE, Pediatric Academic Society Symposium, May 2014

Conducting Human Subjects Research at Duke: An Investigator's Career and Experience. Duke Fellows Symposium on Clinical Research, February; April; September; October 2014

Clinical Research Ethics and Introduction to the Duke IRB, Pediatric Fellows Education Series, May 2014.

Consequences of Antibiotic Overuse in the NICU. American Academy of Pediatrics National Meeting, Perinatal Section Presentation, San Diego, CA, October 2014.

Stem Cells for Hypoxic-Ischemic Encephalopathy, Reasons for Hope? The World Symposium of Perinatal Medicine. San Diego, CA, November 2014.

Cord Blood Cells for HIE, Hot Topics in Neonatology, Washington, D.C., December 2014

Cord Blood Cells for HIE, NEO conference, Orlando, FL, February 2015

Areas of Research Interests:

1. Assess genomic contributions to risks of morbidities of prematurity
2. Initiate studies testing safety and efficacy of autologous cord blood cells for infants with brain injuries. IND's held for autologous cord blood cells for hypoxic-ischemic encephalopathy phase I, IND# 14753, and for autologous cord blood cells for newborns with hypoplastic left heart syndrome IND# 14759.
3. Study the impact of practice variations that influence the microbiome on outcomes of premature infants, and the impact of microbiome variation on health outcomes among preterm infants.
4. Initiate introduction of digital microfluidic-based technologies to newborn screening and neonatal intensive care.
5. Begin investigations of metabolomics and microbiome changes over time in extremely preterm infants to better understand growth failure in this population.

External Support - Gifts, Grants, and Contracts:

	PI	% Effort	Purpose	Amount	Approximate Duration
a) Past:					
Olympic Medical Selective Head Cooling for Infants with Hypoxic-Ischemic Encephalopathy	Cotten (site PI)	5%	Test therapeutic moderate hypothermia using the novel CoolCap™ Device for term infants with hypoxic ischemic encephalopathy.	\$8,400	1999 - 2001
Suntech Medical	Cotten	5%	Suntech Medical Equipment Validation for a new blood pressure measurement device in neonates	\$5,000	2002-2003
Nabi® Biopharmaceuticals Protocol 1408	Benjamin PI Cotten--site PI and steering committee	1%	Phase II dose-ranging study of a human high titer antibody [Altastaph™] against Staph Aureus to prevent Staph aureus infections in very low birthweight infants.	\$50,910	2003 - 2005
Children's Miracle Network Mass Spectroscopy to Measure Levels of Physiologic Substances and Pharmaceuticals in VLBW infants.	Cotten-PI	5%	Validation of using TMS on filter paper samples for standard bioassays	\$19,950	2003 - 2004
MedImmune Pivotal Phase 3 Study of MEDI-524 (Numax™)	Cotten—site PI	1%	Pivotal trial comparing current standard RSV prophylaxis with a new humanized monoclonal antibody against RSV.	\$85,700	2004 - 2006

	PI	% Effort	Purpose	Amount	Approximate Duration
Becton, Dickinson and Company BD OneCath Peripherally Inserted Central Catheter	Cotten-Site PI	1%	Test newly developed catheter in premature infants. Study did not initiate recruitment at any site.	\$12,000	12/15/2005- 12/15/2007
1R43HD047713-01 SBIR Phase I Advanced Liquid Logic Phase I Lab-on- chip for newborn screening of lysosomal storage disorders	Pamula PI Cotten Duke PI	4%	To develop assays for lysosomal storage diseases that are translatable to the microfluidic platform, beginning with Pompe and Fabry diseases.	\$13,352	9/30/07-6/30/08
Prolacta Bioscience A randomized Study of Human Milk-Based Nutrition for Very Low Birth Weight Pre-term Infants	Cotten, Site PI	1%	Assess the tolerability of using a human milk derived human milk fortifier vs. a cow's milk based fortifier in infants 500 – 1250 grams birthweight.	\$133,025	2/6/08-2/5/09
Children's Miracle Network Examining a novel mechanism of vascular compromise in preterm infants	Smith PB PI Cotten, mentor	0%	Assess S-nitrosohemoglobin content in blood to be transfused in 10 preterm infants.	\$24,956	3/1/08-4/30/09
HG 4423 (NHGRI) Genome-wide association studies of prematurity and its complications	Overall study PI: Murray J (U of Iowa) Cotten, collaborator	2%	Provide samples that will help make an appropriate genetic epidemiologic approach to understanding the risk of preterm birth and the morbidities associated with preterm birth.	\$12,151	8/6/07-6/30/09
HHSN2672007000510 Best Pharmaceuticals for Children Act (BCPA) Use of Meropenem in Infants	Benjamin PI, Cotten, Safety Committee chair.	0%	Evaluate the safety, tolerability and PK-PD of meropenem in infants <91 days of age with complicated intra-abdominal infections.	\$4,411,207	9/28/07-9/27/2010
5UL1 RR024128 04 CTSA: Duke Translational Research Institute, Translational Research Pilot Project Collaborative Agreements; Autologous Cord Blood Cells for Brain Injury in Term Newborns	Califf PI Cotten; pilot study PI	15%	Test the feasibility and preliminary safety of use of autologous cord blood in a small sample of infants with moderate to severe hypoxic-ischemic encephalopathy	\$99,625	7/1/2009-6/30/2010
American Asthma Foundation Neuropeptides, Immunity, and Asthma	Sunday PI Cotten, co- investigator	8%	Elucidate the role of neuroendocrine cells and their products in the pathophysiology of asthma in children, using mouse models and human urine samples.	\$250,000	7/1/09-6/30/2010
SBIR Phase II Advanced Liquid Logic –Duke; Lab on	Pamula PI, Cotten, Sub Co- Investigator	1%	Pilot screening study performed in collaboration with Duke and NC State Lab	\$55,447	9/5/2009-8/31/2010

	PI	% Effort	Purpose	Amount	Approximate Duration
a Chip for Multiplexed newborn screening of lysosomal storage disease			of Public Health, involving screening about 10,000 dried blood spots on the digital microfluidic platform.		
SBIR Phase I Advanced Liquid Logic-Duke; Lab-on-a-chip for Hyperbilirubinemia Screening	Srinivasan PI, Cotten sub PI	1%	Provide early development of a multiplex device based on digital microfluidics technology for assessment of bilirubin levels as well as inherited diseases that contribute to risk of hyperbilirubinemia. The device is intended for use in global settings.	\$10,700	9/22/2009-3/31/2011
UNC-CTSA Administrative Supplement Development of BPD Diagnostic Tool	Price PI (UNC) Cotten, sub PI	5%	Development of a clinician friendly bronchopulmonary dysplasia diagnostic instrument.	\$23,683	10/1/09-9/30/2010(extended)
Hartwell Foundation Spectral Domain Optical Coherence Tomography Imaging in Infant Eyes: A practical Diagnostic	Toth PI Cotten, Co-investigator	2%	Develop pediatric SDOCT diagnostic system, which will improve diagnosis and management of pediatric eye disease leading to earlier or better directed therapy and preventing blindness.	\$300,000	4/1/09-3/31/2012
Gerber Foundation Role of the Viable Components of Human Breast Milk in the Formation of the Intestinal Microbiome of Preterm Infants	Seed PI Cotten, Co-mentor	0%	Describe and interpret the evolving intestinal microbiome, metabolome and immune development, and source of microbial acquisition, in preterm infants.	\$20,000	1/1/2010-12/31/2011
R18 AE000028-01 Accelerating Adoption of Comparative Effectiveness Research in Premature Infants	Smith PB PI Cotten, co-investigator	15%	Partnership between academic researchers, government, and private practice neonatologists to develop and test interventions to efficiently implement findings from comparative effectiveness research in preterm infants, focusing on provision of mother's milk and use of antimicrobials.	Annual direct costs \$2,212,828	9/1/2010-8/31/2013
2R44HD062316-02 SBIR Phase II NIH-Advanced Liquid Logics-Duke; Lab-On-Chip for Neonatal Hyperbilirubinemia Screening	Srinivasan PI Cotten, sub PI	5%	Develop prototype multiplex microfluidics device for assays of total bilirubin, G6PD and congenital hypothyroidism for global health applications.	\$20,098	1/1/2011-12/31/2012

	PI	% Effort	Purpose	Amount	Approximate Duration
SPS#181432 5R01HL085703-04 Children's Hospital Colorado Genetic Basis for Impaired Angiogenic Signaling in Bronchopulmonary Dysplasia	Abman PI Cotten Sub PI	5%	Enroll premature infants into the study to test DNA for associations between genetic variants in angiogenic pathways and risk of BPD.	\$36,019	3/1/2011-2/28/2013
Gerber Foundation Evaluation of Peripheral Blood Neutrophil Gene Expression During Neonatal Sepsis	Wynn PI Cotten, co- investigator	1%	Generation of longitudinal peripheral blood neutrophil-specific gene expression and inflammatory marker signatures during infection in neonates.	\$181,818	1/1/2011- 12/31/2012
Robertson Foundation Translational Cell Therapy Center	Kurtzberg PI Cotten, co- investigator; PI for projects for infants with HIE and HLHS	20%	Establish a Translational Cell Therapy Center to create the administrative and laboratory-based infrastructure to conduct early clinical trials of cellular therapy products in man.	\$2,655,643	1/1/2010- 12/31/2012
b) Present					
5U10 HD040492-10 (3rd grant cycle) NICHD Neonatal Research Network:	Cotten PI, Goldberg- Alternate site PI, genomics subcommittee chair (2011-)	5%	Continued participation in the NICHD sponsored Cooperative Multicenter Neonatal Research Network to investigate treatment strategies for the care of neonates through large multicenter collaborative trials.	Total Direct costs (base): \$1,029,864	2001 – 2016. 5 year Competitive renewal spring 2006; 2011
SPS#176844 1R01 HL105702 01A1 Gastrin-Releasing Peptide and Bronchopulmonary Dysplasia	Voynow Cotten, Multi-PI	10%	Our project will test whether increased production of gastrin-releasing peptide, a protein made in the lungs of premature infants, increases the prevalence and severity of chronic lung disease during childhood.	Annual direct costs: \$374,152 Total: \$2,414,878	9/1/2011 – 7/31/2016
NIH-NIDDK 203-2345 Clinical Genomics Study: Recruitment and return of clinically actionable results	Weiner PI Cotten co- investigator	5%	Enroll and study patients with renal and genitourinary abnormalities to carry out comprehensive phenotypic characterization and exome sequencing of the participants in this study.	\$97,915	7/1/2012-6/30/2017
InfaCare Pharmaceutical	Cotten, site PI	1%	Study of efficacy and safety of stansoporfin in newborns	\$9,188	7/1/2014-6/30/2019

	PI	% Effort	Purpose	Amount	Approximate Duration
48-52 Month Follow Up Stannosoporphin 64,185-204			with hemolytic hyperbilirubinemia		
Phillips Healthcare (Robin Knobel, PI) Temperature Monitoring with InnerSense Esophageal Temperature Probe	R. Dail PI Cotten, co Inv	1%	Study of safety and utility of use of an esophageal probe with constant temperature monitoring in premature infants	\$132,197	9/1/2014-8/31/2016
c) Pending:					
SBIR phase II Baebies,Inc Point-of-Care Newborn Screening for Hyperbilirubinemia and G6PD Deficiency	Cotten, clinical site PI	5%	Study to further develop a point of care test using digital microfluidics to measure total bilirubin and G6PD activity for U.S. and Global Health applications	\$16,411	4/1/2015-3/31/2017
*Stanford University The WISER NICU Study	Cotten, site PI	5%	Study to assess work culture among NICU staff and an intervention testing resilience among staff as it relates to NICU outcomes	\$147,529	7/1/2015-6/30/2019
*RO-1 NIH PREMAvision Study - Clinical Cen	Toth PI, Cotten co-investigator	10%	Multicenter study to assess Spectral-Domain Optical Coherence Tomography in preterm babies and how this novel imaging relates to visual acuity outcomes and neurodevelopmental outcomes of extremely preterm infants	\$2,058,570	7/1/2015-6/30/2022

Clinical Activity:

Type of Practice

Time Commitments

DUMC Neonatal ICU

NICU service 3 months per year

Duke Regional Hospital Special Care Nursery

Approximately 0.5 months per year.

Special Infant Care Clinic

Cover clinic approximately 6x/year.

Night and weekend coverage shared equally among division.

Participation in Academic and Administrative Activities of the University and Medical Center:

Institutional Review Board
Department Reviewer
Board Member

2002 - present

2014 -

Charles M. Cotten, M.D.
October 1, 2006

IRB Chair
Director, Special Care Nursery, Durham Regional Hospital
Medical Director, Clinical Research, Duke Neonatology
Medical Student Applicant Interviews

1999 – 2006
2002 – present
2008 - 2013

Personal Information

Faculty Member's Preferred Familiar Name: Michael Cotten

Home Address: 9 Windflower Place
Durham, NC 27705

Home Telephone 919-383-6426

Marital Status: Married Name of Spouse: Denice

Children: Two Names: Emily (19); Bridget (14)