

## BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.  
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NAME <b>Vinod K. Bhutani</b> eRA COMMONS USER NAME <b>BHUTANI.vinod</b>	POSITION TITLE <b>Professor of Pediatrics (Neonatology)</b>		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Armed Forces Medical College, Pune, India	MBBS	1972	Medicine
Temple Univ. School of Medicine, Philadelphia PA	Post-Doc	1981	Physiology
St. Christopher's Hospital, Philadelphia PA	Fellow	1981	Neonatal-Perinatal Medicine

### A. Personal Statement.

To foster academic growth of child health advocates and translational scientists, I **promote global maternal-child health and society translational research** through a mentorship programs for clinicians, neonatologists, trainees, post-doctoral fellows and graduate students, as well as through collaboration with scientists, faculty and as Project Director and Principal Investigator of several research awards. Specific investigative domains to reduce childhood morbidity and mortality include a) **as a physiologist**: application of fetal and neonatal physiological principles to translation basic science; b) **through biodesign**: development of affordable, high quality evidence-based biotechnologies for global reduction of infant mortality and morbidities, and c) **through translational medicine**: prevention of jaundice-related newborn brain damage through systems-approach, biotechnologies and chemoprevention as well as d) **through clinical care**: urgent care of newborn respiratory disorders and applications of related biomedical technologies to prevent neonatal brain injury.

### B. Positions and Honors.

#### Positions and Employment:

1979 Certification, The American Board of Pediatrics  
 1981 Certification, Sub-Board of Neonatal-Perinatal Medicine  
 1981-03 Neonatologist, Pennsylvania Hospital, Philadelphia PA  
 1981-85 Research Assistant Professor, Physiology, Temple Univ. School of Medicine, Philadelphia PA  
 1982-84 Assist/Assoc Professor of Pediatrics, Univ. of Pennsylvania School of Medicine, Philadelphia PA  
 1986-05 Pediatrician to Pennsylvania Hospital, Philadelphia PA  
 1986-05 Senior Physician at Children's Hospital of Philadelphia, Philadelphia PA  
 1995-05 Professor, Jefferson Medical College, Philadelphia PA  
 1997-05 Clinical Professor of Pediatrics, Univ. of Pennsylvania School of Medicine, Philadelphia PA  
 1997-02 Chair, Research Review Committee, Pennsylvania Hospital, Univ. of Pennsylvania, Philadelphia PA  
 1997-06 Adjunct Faculty, School of Nursing, Univ. of Pennsylvania, Philadelphia PA  
 2005-06 Clinical Professor of Pediatrics, Stanford Univ. School of Medicine, Stanford CA  
 2006- Professor of Pediatrics (Neonatology), Stanford Univ. School of Medicine, Stanford CA

#### Honors and Awards (abridged):

American Academy of Pediatrics 1980; Secretary-Treasurer, Philadelphia Perinatal Society 1985-7; "Top Doc For Kids" Philadelphia Magazine 1992, 2001; Society For Pediatric Research 1984; Outstanding Teacher, Senior Obstetrics and Gynecology Resident Award, Pennsylvania Hospital 1984; President, Philadelphia Perinatal Society 1990-2; Meyer Eglin Award, Pennsylvania Hospital, 1997, 1999, 2000; American Pediatric Society 2001; Chair, Academic Affairs Committee American Association of Physicians from India 1997-99; Member, AAP Section On Perinatal Pediatrics 2000-05; Resident's Teaching Honor Roll at Children's Hospital of Philadelphia 1998; Pennsylvania Governor's Gold and Silver Award, Pennsylvania, Department of Aging 2000; Executive Committee, Section on Perinatal Pediatrics, American Academy of Pediatrics, 2001; Co-Chair, Audrey K. Brown Kernicterus Symposium, Pediatric Academic Societies, 2003; Committee of Fetus and Newborn, American Academy of Pediatrics, 2005; "Physician of the Year" Award, Philadelphia Breastfeeding Group 2005; Chair, District IX Committee of Fetus and Newborn, 2006; Fellow of the National Neonatology Forum of India, 2006; Board Member, California Association of Neonatologists, 2008; MOC, Sub-Board of Neonatal-Perinatal Medicine, ABP, 2010; Faculty, Stanford-India Biodesign Program, Stanford University, 2010.

### C. Selected Peer-Reviewed Publications. (selected from over 149)

1. **Bhutani VK**, Sivieri EM, Abbasi S, Shaffer TH. Evaluation of neonatal pulmonary mechanics and energetics: A two factor least mean square analysis. *Pediatr Pulmonol* 4:150-8,1988. PMID: 3374983

2. Davis JM, Veness-Meehan K, Notter RH, **Bhutani VK**, Kendig JW, Shapiro DL. Changes in pulmonary mechanics after the administration of surfactant to infants with respiratory distress syndrome. *N Engl J Med* 319:476-9, 1988.
3. Raju TNK, Langenberg P, **Bhutani VK**, Quinn GE. Vitamin E prophylaxis to reduce retinopathy of prematurity: A reappraisal of published trials. *J Pediatr* 131:844-50, 1997. PMID: 9427888
4. **Bhutani VK**, Johnson LH, Sivieri EM. Predictive ability of a predischarge hour-specific serum bilirubin for subsequent significant hyperbilirubinemia in healthy term and near-term newborns. *Pediatrics* 103:6-14, 1999. PMID: 9917432
5. **Bhutani VK**, Gourley GR, Adler S, Kreamer B, Dalin C, Johnson LH. Noninvasive measurement of total serum bilirubin in a multiracial predischarge newborn population to assess the risk of severe hyperbilirubinemia. *Pediatrics* 106:e17-26, 2000. PMID: 10920173
6. Stevenson DK, Fanaroff AA, Maisels MJ, Young BW, Wong RJ, Vreman HJ, MacMahon JR, Yeung CY, Seidman DS, Gale R, Oh W, **Bhutani VK**, Johnson LH, Kaplan M, Hammerman C, Nakamura H. Prediction of hyperbilirubinemia in term and near-term newborn infants. *Pediatrics* 108:31-9, 2001
7. Johnson LH, **Bhutani VK**, Brown AK. System-based approach to management of neonatal jaundice and prevention of kernicterus. *J Pediatr* 140:396-403, 2002. PMID: 12006952
8. **Bhutani VK**, Johnson LH, Maisels MJ, Newman TB, Phibbs C, Stark AR, Yeargin-Allsop M. Kernicterus: Epidemiological strategies for its prevention through systems-based approaches. *J Perinatol* 24:650-62, 2004. PMID: 15254556
9. **Bhutani VK**, Bowen FW, Sivieri E. Postnatal changes in pulmonary mechanics and energetics of infants with respiratory distress syndrome following surfactant treatment. *Biol Neonate* 87:323-31, 2005. PMID: 15985755
10. **Bhutani VK**, Johnson LH, Schwoebel A, Gennaro S. A systems approach for neonatal hyperbilirubinemia in term and near-term newborns. *J Obstet Gynecol Nursing*. 35:444-55, 2006. PMID: 16881988
11. **Bhutani VK**, Maisels MJ, Stark AR, Buonocore G; Expert Committee for Severe Neonatal Hyperbilirubinemia; European Society for Pediatric Research; American Academy of Pediatrics. Management of jaundice and prevention of severe neonatal hyperbilirubinemia in Infants  $\geq 35$  weeks gestation. *Neonatology* 94:63-7, 2008. PMID: 18204221
12. Johnson L, **Bhutani VK**, Karp K, Sivieri EM, Shapiro SM. Clinical report from the pilot USA Kernicterus Registry (1992 to 2004). *J Perinatol* 1:S25-45, 2009. PMID: 19177057
13. **Bhutani VK**. Performance evaluation for neonatal phototherapy. *Indian Pediatr* 46:19-21, 2009. PMID:19179712
14. **Bhutani VK**, Vilms RJ, Hamerman-Johnson L. Universal bilirubin screening for severe neonatal hyperbilirubinemia. *J Perinatol* 30 Suppl:S6-15, 2010. PMID: 20877410
15. Wong RJ, **Bhutani VK**, Vreman HJ, Stevenson DK. Tin mesoporphyrin for the prevention of severe neonatal hyperbilirubinemia. *NeoReviews* 8:e77-84, 2007.
16. **Bhutani VK**, Stark AR, Lazzeroni LC, Poland R, Gourley GR, Kazmierczak S, Meloy L, Burgos AE, Hall JY, Stevenson DK; Initial Clinical Testing Evaluation And Risk Assessment For Universal Screening For Hyperbilirubinemia Study Group. Predischarge Screening For Severe Neonatal Hyperbilirubinemia Identifies Infants Who Need Phototherapy. *J Pediatr*. 2012 Oct 5. PMID: 23043681
17. **Bhutani VK**. Late Preterm Births Major Cause Of Prematurity And Adverse Outcomes Of Neonatal Hyperbilirubinemia. *Indian Pediatr*. 2012 Sep 8;49(9):704-5. PMID: 23024077
18. Maisels MJ, Watchko JF, **Bhutani VK**, Stevenson DK. An Approach To The Management Of Hyperbilirubinemia In The Preterm Infant Less Than 35 Weeks Of Gestation. *J Perinatol*. 2012 Sep;32(9):660-4. PMID: 22678141
19. Hudak ML, Tan RC; Committee On Drugs; **Committee On Fetus And Newborn**; American Academy Of Pediatrics. Neonatal Drug Withdrawal. *Pediatrics*. 2012 Feb;129(2):E540-60. PMID: 22291123
20. **Bhutani VK**, Wong RJ. Neonatal Phototherapy: Choice Of Device And Outcome. *Acta Paediatr*. 2012 May;101(5):441-3. PMID: 22251098
21. **Bhutani VK**. Editorial: Building Evidence To Manage Newborn Jaundice Worldwide. *Indian J Pediatr*. 2012 Feb;79(2):253-5. PMID: 22183759
22. **Bhutani VK**; Committee On Fetus And Newborn; American Academy Of Pediatrics. Phototherapy To Prevent Severe Neonatal Hyperbilirubinemia In The Newborn Infant 35 Or More Weeks Of Gestation. *Pediatrics*. 2011 Oct;128(4):E1046-52. PMID: 21949150

23. Baker CJ, Byington CL, Polin RA. Committee On Infectious Diseases; **Committee On Fetus And New-born**, Policy Statement Recommendations For The Prevention Of Perinatal Group B Streptococcal (GBS) Disease. Pediatrics. 2011 Sep;128(3):611-6. PMID: 21807694.
24. Angelo A. Lamola, **Vinod K. Bhutani**, David K. Stevenson, and Antony F. McDonagh. Action Spectrum And The Effect Of Hematocrit On The Efficacy Of Phototherapy for Neonatal Jaundice. Pediatric Research [In Press]

**D. Research Support.**

**FY 04/01/2012-03/31/2014:**

NIDCD Research Grants for Translating Basic Research into Clinical Tools (SBIR):

PAR-11-096: Bhutani (PI)

**Bilirubin Binding Capacity in Neonates at Risk for Severe Hyperbilirubinemia**

This study verifies the accuracy of a new upgraded hematofluorometer for measuring bilirubin-binding capacity in whole blood taken from healthy term as well as jaundiced preterm neonates and anticipate to recruit patients Lucile S. Packard Children's Hospital at Stanford University. The goal is to develop an inexpensive, easy-to-use (no special specimen manipulation), point-of care system based on the prior work reported by ATT's Bell Laboratories and the experience of Aviv Biomedical, Inc.

**FY 12/01/2011-11/30/2013:**

NIH [SBIR: Phase II] Advanced Liquid Logics, Inc., Durham, NC, USA [pending]: 2011-2012

Srinivasan (PI); site PI: Bhutani

**LAB-ON-A-CHIP for Neonatal Hyperbilirubinemia Screening**

The overall objective of this phase I project is to demonstrate the feasibility of an integrated rapid turnaround lab-on-a-chip for multiplexed screening of neonates at risk for hyperbilirubinemia and its most common underlying pathological causes, Glucose-6-Phosphate Dehydrogenase deficiency, and Congenital Hypothyroidism.

Presidential Fund for Innovation in International Studies, Stanford University

Bhutani (PI). 07/01/07-

**Stanford-International Health and Society Initiative: Proposal to Plan for an Initial Program in the Indian Subcontinent.**

This is a planning project to develop a "Maternal Child Health and Society" Scholar mentorship program to provide diverse multi-disciplinary mentorship for undergraduate, graduate and junior faculty scholarly research. The plan is to build partnership programs with academic partners in India using biomedical

1 R21 EY019996-01 [NEI]: 2009-2011

William Good {PI} / Consultant: Bhutani

**Neonatal Jaundice and Vision Loss**

This study investigates long lasting neurological effects consequent to moderate and severe hyperbilirubinemia in the newborn period. Preliminary data that "moderate" levels of bilirubin result in measurable alterations of the normal course of visual development will be confirmed in a "powered" sample and determine whether this visual "dysfunction" resolves by 12 months of age. The equipoise is whether temporary and persistent associations between severity of neonatal jaundice and vision [using the sweep visual evoked potential (sVEP), to measure visual acuity thresholds and signal amplitudes for 3 types of vision: contrast sensitivity, vernier acuity, and grating acuity].

NICHD [SBIR Phase I]. Aviv Biomedical, Inc.; Lakewood, NJ, USA: 2010-2011

Angelo Lamola (PI) Consultant: Bhutani

**Point-of-Care Assays of Bilirubin, Bilirubin Binding Capacity and Unbound Bilirubin Using Whole Blood.**

To develop a hematofluorometer devoted to assaying bilirubin and bilirubin binding capacity using 50 microliters of whole blood. The goal is an inexpensive, easy-to-use (no special specimen manipulation), point-of care system based on the prior work reported by ATT's Bell Lab and the experience of Aviv Biomedical, Inc.

R21HD060901-01 (NICHD)

Wennberg (PI). Bhutani: co-PI. 04/01/09-03/31/11 (completed)

**Risk Factors for Encephalopathy in Newborns with Severe Hyperbilirubinemia (FRESH: Factors of Risk for Encephalopathy with Severe Hyperbilirubinemia)**

The purpose of this study is to define readily measurable laboratory and clinical risk factors that identify newborns at risk for bilirubin-induced brain injury and thus improve the selection of patients needing treatment with phototherapy or exchange transfusion. This application was developed in collaboration with Egyptian partners because of a high prevalence of hyperbilirubinemia and kernicterus in Cairo, providing a unique opportunity to systematically evaluate risk factors for bilirubin encephalopathy.

R-21. NIH, Autism Speaks, Government of India [Ministry of Social Justice]: 2008-2011 (completed)

Arora NK (PI) /Technical Advisor: Bhutani

**Neuro-developmental Disabilities (NDD) among children in India: An INCLEN Study**

This is a study initiated INCLEN, an international network of healthcare professionals who apply multidisciplinary approaches to identify best practices to improve “health for all” in local, national, regional and global settings. The primary objective of this research project is to assess the screening and diagnostic prevalence of neuro-developmental disorders among children aged 2-9 years in India and to gather information on potentially modifiable risk factors. Data on the prevalence and spectrum of neuro-developmental disabilities in the community and potentially modifiable risk factors will be useful for advocacy purposes and help policy makers allocate adequate resources for prevention, treatment and rehabilitation for the neuro-developmentally disabled. [Bhutani serves as a Member of the Technical Advisor Group that include faculty from University of Pennsylvania and University of Wisconsin].

**Other Completed Research Support (recent)**

Contract No. 128888/126675 (NNSGRC) Bhutani (PI) 05/01/09-05/31/10

**A Stake Holders Conference: Determine the Feasibility of G6PD Deficiency Identification for Prevention of Severe Neonatal Hyperbilirubinemia**

The purpose of this grant was to identify stakeholders and convene a meeting to define the feasibility a pilot multi-state study to determine the utility of universal Glucose-6-phosphate dehydrogenase (G6PD) screening to prevent severe neonatal hyperbilirubinemia in at risk infants. The outcome of the meeting was “A White-Paper Report from a Stakeholders Meeting to Determine the Feasibility of G6PD Deficiency Identification for Prevention of Severe Neonatal Hyperbilirubinemia”.

HRSA/MCHB U21MC04403; NIH M01RR-00070, M01RR0018.

Bhutani (PI) 06/01/04-06/30/09

**Safe Outcome for Neonatal Hyperbilirubinemia: ICTERUS Study**

The purpose is to prospectively test two methods to assess the risk of severe neonatal hyperbilirubinemia in a largely racially diverse US population: the use of a single prediction rule based on either a pre-discharge bilirubin measurement expressed as a risk zone based on clinical factors alone; and the use of a combined prediction rule of clinical risk factors and hour-specific bilirubin values.

MM-0048 (AAMC/CDC).

Bhutani (PI) 10/01/02-09/30/08

**Kernicterus Research and Prevention**

The purpose is to analyze data from the existing Pilot kernicterus Registry, conduct a root cause analysis, and develop partnerships for both clinician and community education so as to initiate a national prevention program with the assistance of an oversight group and Kernicterus Prevention Taskforce.

Kernicterus Fund (Pennsylvania Center for Kernicterus) Johnson (PI) 01/01/00-12/31/10