BIOGRAPHICAL SKETCH

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NAME: Bhutani, Vinod K.

eRA COMMONS USER NAME (credential, e.g., agency login): BHUTANI.vinod

POSITION TITLE: Professor of Pediatrics, Emeritus

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Armed Forces Medical College, Pune, India	MBBS	07/1972	Medicine
Albert Einstein Medical Center, Philadelphia PA	MD	07/1977	Pediatrics
St. Christopher's Hospital, Philadelphia PA	FELLOW	071979	Neonatal/Perinatal Med
Temple Univ. School of Medicine, Philadelphia PA	Post-Doc	07/1981	Physiology

A. Personal Statement

I have completed over 50 years in the study of Medicine and now an Emeritus Professor at Stanford University. I trained in the basic sciences of physiology and neonatology and have evolved to advance translational research to the design and use of innovative and evidence-based technologies/toolkits that are intuitive, practical to reduce neonatal morbidities and mortality. These aims are supported by 4 specific investigative domains: (**i)** prevention (specifically) of jaundice-related newborn brain damage through systems-approach, biotechnologies and chemoprevention. (**ii)** translation of clinical evidence to systems application and operationalization through novel healthcare access; (**iii)** elucidation of early clinical biomarkers in long-term neonatal health and developing targeted interventions; and (**iv)** design of affordable, high-quality evidence-based biotechnologies for global reduction of infant mortality and morbidities. I have pioneered universal pre-discharge neonatal bilirubin screening, global maternal Rhesus blood type screening, point-of-care G6PD testing, neonatal hemolysis screening, assays for bilirubin binding and effective prescription of phototherapy. In addition, i collaborated in the development novel neonatal thermal support (Embrace device), computerized neonatal function testing (pulmonary graphics) and adaptive oxygen delivery. Using advanced predictive models of epidemiologic indices to clinical observations, I have translated these to real and durable changes in clinical practice and health policy. I continue my academic role at Stanford University to pursue the question whether we should screen for glucose-6-phosphate dehydrogenase deficiency to reduce neonatal morbidities and mortality in the global neonatal population.
Ongoing and recently completed projects that I would like to highlight include:

R01EY030537
Bhutani (co-PI)
12/01/2019–11/30/2023
Visual-evoked Responses in Preterm and Term Neonates with Hyperbilirubinemia

R21 HD0823319 (NIH/NICHD)
Bhutani (co-pi)
12/01/2015–11/30/2018
Bilirubin Binding Capacity to Assess Bilirubin Load in Preterm Infants

R44 HD062316 (NIH/NICHD)
Bhutani (PI)
04/30/2012–04/30/2014
Lab-on-a-chip for Neonatal Hyperbilirubinemia Screening

Citations:

1. **Bhutani VK,** Wong RJ, Turkewitz D, Rauch DA, Mowitz ME, Barfield WD; **Committee on Fetus & Newborn.** Phototherapy to Prevent Severe Neonatal Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation: Technical Report. Pediatrics. 2024 Sep 1;154(3):e2024068026. doi: 10.1542/peds.2024-068026. PMID: 39183672.
2. Milburn S, **Bhutani VK,** Weintraub A, Guttmann K. Implementation of Universal Screening for G6PD Deficiency in Newborns. Pediatrics. 2024 Aug 1;154(2):e2024065900. doi: 10.1542/peds.2024-065900. PMID: 38988309.
3. Good WV, Wong RJ, Norcia AM, Stevenson DK, Slagel T, Hou C, **Bhutani VK.** Bilirubin-induced neurotoxicity and visuocortical dysfunction. J Perinatol. 2023 Feb;43(2):240-241. doi: 10.1038/s41372-022-01417-2. Epub 2022 May 26. PMID: 35618749; PMCID: PMC9699893.
4. **Bhutani VK,** Kaplan M, Glader B, Cotton M, Kleinert J, Pamula V. Point-of-care quantitative measure of glucose-6-phosphate dehydrogenase enzyme deficiency. *Pediatrics 2015.* 136(5):e1268-75, 2015. PMID: 26459646
5. **Bhutani VK,** Zipursky A, Blencowe H, et al Cousens S, Lawn JE. Neonatal hyperbilirubinemia and Rhesus disease of the newborn: incidence and impairment estimates for 2010 at regional and global levels. Pediatr Res. 2013 Dec;74 Suppl 1:86-100.

B. Positions, Scientific Appointments, and Honors

Positions and Employment:

2022- Professor of Pediatrics Emeritus, Stanford University School of Medicine, Stanford CA
2006-22 Professor of Pediatrics (Neonatology), Stanford University School of Medicine, Stanford CA
2005-06 Clinical Professor of Pediatrics, Stanford University School of Medicine, Stanford CA
1997-06 Adjunct Faculty, School of Nursing, University of Pennsylvania, Philadelphia PA 1979 Life
1997-02 Chair, Research Review Committee, Pennsylvania Hospital, Univ. of Pennsylvania, Philadelphia PA
1995-05 Professor, Jefferson Medical College, Philadelphia PA
1986-05 Senior Physician at Children's Hospital of Philadelphia, Philadelphia PA
1986-05 Pediatrician to The Pennsylvania Hospital, Philadelphia PA
1982-94 Assist./Assoc. Professor of Pediatrics, Univ. of Pennsylvania School of Medicine, Philadelphia PA
1981-85 Research Assistant Professor, Physiology, Temple Univ. School of Medicine, Philadelphia PA
1981-03 Attending Neonatologist, The Pennsylvania Hospital (First Hospital of the Nation), Philadelphia PA
1981- Life Certification, Sub-Board of Neonatal-Perinatal Medicine; Voluntary renewal (MOC): 2010.
1979- Life Certification, The American Board of Pediatrics

Honors

2019 Lifetime Achievement Award, Indian Academy of Pediatrics
2016 Legend of Neonatology, NeoForum, USA
2015 Usher Lecture, McGill University, Quebec
2014 Landmark Award, American Academy of Pediatrics
2013 Lifetime Achievement Award, National Neonatology Forum of India
2011 Curran Lecture, University of South Florida
2005 "Physician of the Year" Award, Philadelphia Breastfeeding Group
2003 Co-Chair of Audrey K. Brown Kernicterus Symposium, Pediatric Academic Societies
2003 Founded and Co-Chair of Bilirubin Club Pediatric Academic Societies

C. Contributions to Science

a) ***Systems Approach to Neonatal Hyperbilirubinemia:*** **Based on our root cause analysis of 125 cases of kernicterus that had been initiated to a Pilot Registry by Drs. Brown and Johnson, we explored *definition of parameters of total bilirubin and other bilirubin biomarkers*.**

1. 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
2. Bhutani VK, Johnson LH, Keren R. Diagnosis and management of hyperbilirubinemia in the term neonate: for a safer first week. *Pediatr Clin North Am* 51:843-61, 2004. PMID: 15275978

3. Bhutani VK, Johnson LH, Schwoebel A, Gennaro S. A systems approach for neonatal hyperbilirubinemia in term and near-term newborns. *J Obstet Gynecol Neonatal Nurs* 35:444-55, 2006. PMID: 16881988.
4. Lamola AA, Bhutani VK, Du L, Castillo Cuadrado M, Chen L, Shen Z, Wong RJ, Stevenson DK. Neonatal bilirubin binding capacity discerns risk of neurological dysfunction. Pediatr Res. 2015 Feb;77(2):334-9. doi: 10.1038/pr.2014.191. Epub 2014 PMID: 25420178
5. Bhutani VK, Wong RJ, Turkewitz D, Rauch DA, Mowitz ME, Barfield WD; Committee on Fetus & Newborn. Phototherapy to Prevent Severe Neonatal Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation: Technical Report. Pediatrics. 2024 Sep 1;154(3):e2024068026. doi: 10.1542/peds.2024-068026. PMID: 39183672.

b) **Understanding the ramification of neonatal consequences of G6PD deficiency and risk of kernicterus**

1. Bhutani VK, Kaplan M, Glader B, Cotten M, Kleinert J, Pamula V. Point-of-Care Quantitative Measure of Glucose-6-Phosphate Dehydrogenase Enzyme Deficiency. Pediatrics. 2015;136(5):e1268-75. PMCID: PMC4621802.
2. Bhutani VK. G6PD trait: societal importance to ensure well-being of female heterozygotes for health and childbirth. Pediatr Res. 2024 Nov 13. doi: 10.1038/s41390-024-03712-4. Epub ahead of print. PMID: 39537762.
3. Milburn S, Bhutani VK, Weintraub A, Guttmann K. Implementation of Universal Screening for G6PD Deficiency in Newborns. Pediatrics. 2024 Aug 1;154(2):e2024065900. doi: 10.1542/peds.2024-065900. PMID: 38988309.
4. Kaplan M, Hammerman C, Bhutani VK. The Preterm Infant: A High-Risk Situation for Neonatal Hyperbilirubinemia Due to Glucose-6-Phosphate Dehydrogenase Deficiency. Clin Perinatol. 2016 Jun;43(2):325-40. doi: 10.1016/j.clp.2016.01.008. Epub 2016 Feb 28. PMID: 27235211.
5. Kaplan M, Hammerman C, Bhutani VK. Parental education and the WHO neonatal G-6-PD screening program: a quarter century later. J Perinatol. 2015 Oct;35(10):779-84. doi: 10.1038/jp.2015.77. Epub 2015 Jul 16. PMID: 26181718.

c) ***Bilirubin Induced Neurologic Dysfunction*** **(BIND): The transitional imbalance of production and elimination of bilirubin is normal, but conditions with increased bilirubin production and hemolysis are often unidentified or left untreated and may lead to BIND and even kernicterus.**

1. Bhutani VK, Stark AR, Lazzeroni LC, Poland R, Gourley GR, Kazmierczak S, Meloy L, Burgos AE, Hall JY, Stevenson DK. Predischarge screening for severe neonatal hyperbilirubinemia identifies infants who need phototherapy. *J Pediatr* 162:477-82. 2013. doi: 10.1016/j.jpeds.2012.08.02
2. Johnson L, Bhutani VK. The clinical syndrome of bilirubin-induced neurologic dysfunction. Semin Perinatol. 2011 Jun;35(3):101-13. doi: 10.1053/j.semperi.2011.02.003. PMID: 21641482.
3. Bhutani VK, Zipursky A, Blencowe H, Khanna R, Sgro M, Ebbesen F, Bell J, Mori R, Slusher TM, Fahmy N, Paul VK, Du L, Okolo AA, de Almeida MF, Olusanya BO, Kumar P, Cousens S, Lawn JE. Neonatal hyperbilirubinemia and Rhesus disease of the newborn: incidence and impairment estimates for 2010 at regional and global levels. Pediatr Res. 2013 Dec;74 Suppl 1:86-100.
4. 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. 2000 Aug;106(2):E17. doi: 10.1542/peds.106.2.e17. PMID: 10920173.
5. Okwundu C, Bhutani VK, Smith J, Esterhuizen TM, Wiysonge C. Predischarge transcutaneous bilirubin screening reduces readmission rate for hyperbilirubinaemia in diverse South African newborns: A randomised controlled trial. S Afr Med J. 2020 Feb 26;110(3):249-254. doi: 10.7196/SAMJ.2020.v110i3.14186. PMID: 32657704.

d) ***Biodesign of Affordable Technologies in Global Health*****. The unacceptable occurrence of severe neonatal hyperbilirubinemia and kernicterus led us to author several studies to promote a safer seamless transition from birthing facility to home during the first week after birth**

1. 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, 2000. PMID: 10920173
2. Cline BK, Vreman HJ, Faber K, Lou H, Donaldson KM, Amuabunosi E, Ofovwe G, Bhutani VK, Olusanya BO, Slusher TM. Phototherapy Device Effectiveness in Nigeria: Irradiance Assessment and

Potential for Improvement. J Trop Pediatr. 2013 Aug;59(4):321-5.
3. Ahlfors CE, Bhutani VK, Wong RJ, Stevenson DK. Bilirubin binding in jaundiced newborns: from bench to bedside? Pediatric research. 2018; PMID: 29967530
4. Christensen RD, Bahr TM, Wong RJ, Vreman HJ, Bhutani VK, Stevenson DK. A "Gold Standard" Test for Diagnosing and Quantifying Hemolysis in Neonates and Infants. J Perinatol. 2023 Dec;43(12):1541-1547. doi: 10.1038/s41372-023-01730-4. Epub 2023 Jul 19. PMID: 37468612.
5. Bhutani VK, Vidavalur R, Wong RJ. Advances to diminish global newborn kernicterus mortality. J Perinatol. 2024 Apr;44(4):493-500. doi: 10.1038/s41372-023-01862-7. Epub 2023 Dec 27. Erratum in: J Perinatol. 2024 Apr;44(4):600-601. doi: 10.1038/s41372-024-01903-9. PMID: 38151598.

e) Neonatal Pulmonary Physiology and Neonatal Respiratory Disorders: My post-doctoral in neonatal pulmonary physiology led to evidence injuring compliant airways by mechanical ventilation; translation of bench neonatal pulmonary function to led the bedside display of pulmonary graphics:

1. Bhutani VK, Rubenstein SD, Shaffer TH. Pressure-induced deformation in immature airways. *Pediatr Res* 15:829---32, 1981. PMID: 7017562
2. Bhutani VK, Rubenstein SD, Shaffer TH. Pressure-volume relationships of tracheae in fetal, newborn and adult rabbits. *Respir Physiol* 43:221-31, 1981. PMID: 7280379
3. 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 Eng J Med* 319:476-9, 1988. PMID: 3405254
4. Bhutani VK, Abbasi S, Long W, Gerdes JS. Pulmonary mechanics and energetics in preterm infants who had respiratory distress syndrome treated with synthetic surfactant. *J Pediatr* 120:S18-24,
5. Bhutani VK, Abbasi S. Relative likelihood of bronchopulmonary dysplasia based on pulmonary mechanics measured in preterm neonates during the first week of life. *J Pediatr* 120:605-13, 1992. PMID: 1552402

Complete List of Published Work in MyBibliography (Bhutani, V).

https://www.ncbi.nlm.nih.gov/myncbi/vinod%20k..bhutani.1/bibliography/public/