

## BIO-DATA OF DR. ARUN K. SINGH



**Name** : Dr. Arun Kumarendu Singh

**Father's Name** : Late Dr. Ram Sarikh Singh, PhD

**Postal Address** : 41B, Dilkhusha Street, Kolkata- 700017  
Phone (Res): (033) 2223 2545, Mobile: 9433112434:  
**E-mail: drarunsingh61@yahoo.co.in**

**Nationality** : Indian

**Date of Birth** : 31st January, 1961

**Marital Status** : Married

**Languages known** : English, Hindi, Bengali

**Super-specialty Interest** : Neonatology (Advanced), Community Neonatology and Early Intervention for 0-3 yrs

**Present Designation:** **\*National Advisor**, RBSK (Rastriya Bal Swasthya Karyakram) (National child Health Program) under Ministry of Health, Government of India  
**\*Professor and ex Head Department of Neonatology:** Institute of Post Graduate Medical Education & Research (IPGMER) & S.S.K.M. Hospitals.

Responsibility as National Advisor:

- Conceived the program for all children of the country from birth to 18 years for universal screening and management.
- Developed and wrote the training manual for screening by basic health personals
- Helped in implementing in all the states of the country. Developed and designed an indigenous labor room, now accepted by the Government of India.

D) Developed and wrote 15 manuals for RBSK program

Apart from being national advisor other simultaneous functions:

- ❖ Advisor to Chief minister Andhra Pradesh on mother and child issues.

Contribution at **State Level:**

- a) Development of the first "Department of Neonatology" in the country at IPGMER and SSKM Hospital, Kolkata
- b) Started the first DM Neonatology course in Eastern India and third in the country.
- c) Started the first **Institute of Neonatology** with **Modern Breast milk bank, (First in the country)**, genetics laboratory, Neonatal microbiology lab, Neonatal brain research lab, IEM lab (In born error of metabolism lab), Neuro-developmental and early intervention unit, with facilities for neonatal autopsy and clinical-pathological museum along with facilities of developing indigenous Instrumentation with **Indian Institute of Technology Kharagpur** and developing Public health through community neonatology.

Contribution at **National level:**

- a) Developed the concept of **sick new born care unit**, for the first time globally and demonstrated it at Purulia District hospital, West Bengal, India; this was supported with multiple International papers, including Lancet. This model "Purulia Model" was replicated in 500 districts out of 650 districts of the country, and also in some of the south Asian countries.

- b) Was involved in initiating the first district **early intervention centre**, "Samarpan" in the country at Hosangabad, Madhya Pradesh.

- c) Developed the design for the modern labour room, which was accepted by Government of India.

- d) Supported Government of Madhya Pradesh, Government of Odisha, Government of Rajasthan, and Government of Bihar in developing sick newborn care unit, including training of the doctors and nurses.
- e) Was instrumental in developing operational guidelines, resource material, job aids, developmental tools, teaching material for RBSK.

Contribution at **International level**: a) Delivered guest lectures, at the **International Summer School**, at the University of Oslo, Norway.

b) Presented original work at Neonatal Sepsis at “Hot topics in Neonatology” at Washington DC through University grant Commission scholarship.

c) Isolated for the first time NDM gene responsible for complete bacterial resistance to all known antibiotics among neonates and its mechanism of spread, backed with multiple International publications.

**Educational Qualification:**

Degree	Institution	Subject	Year of Passing
MBBS	Nilratan Sircar Medical College, Kolkata	Medicine	1983
DCH	Calcutta Medical College; Kolkata	Pediatrics	1988
MD	AIIMS; New Delhi	Pediatrics	1997

**Medical Registration No. :** 44360 (West Bengal Medical Council)

**Responsibilities:** Current and in Recent Past

**A. Developing RBSK program**

**B. Departmental Administration, Communication and Planning**

**C. Teaching & Training**

- Undergraduate Medical Training: Teaching of Undergraduate (MBBS) Students

- Postgraduate Training : Teaching of DCH & MD (Pediatrics) Students
- Newborn Care Training for Medical Officers and Pediatricians from districts
- Newborn Care Training for Nurses: a) GNM, B.Sc & M.Sc Nursing Students at  
IPGMER  
b) Training of Nurses from Districts
- Newborn Care Training for Nurses and Doctors from Rajasthan, Andaman , Bihar, etc

#### **D. Clinical Responsibility:**

- Supervision of functioning of all categories of departmental staff
- Supervision of the Neonates in the Lying-in ward and in the 16-bed Neonatal Intensive Care Unit (NICU), the newborn care equipments and the in-house investigation facilities.

#### **E. Research Guide:**

- Co-guide to three MD thesis in subjects related to neonatology
- Guide of one and Co-guide of one PhD students in subjects related to neonatology

#### **F. Collaborative Research Projects:**

##### **A. With Society for Applied Studies, Kolkata**

- Concept of Sick Newborn Care Units at District and sub-district levels (now known as *the Purulia Model*) and Development of Sick Newborn Care Units at District Hospitals, Purulia, Birbhum and Kochbehar districts and at Sub-division Hospital, Islampur, Uttar Dinajpur district, West Bengal and GB Pant Hospital, Port Blair, Andaman & Nicobar Islands.
- Development of Training Module and Training of Medical officers & Nursing Staff of Sick Newborn Care Units of District Hospitals, Purulia and Birbhum districts and at GB Pant Hospital, Port Blair, Andaman & Nicobar Islands .
- Concept of Newborn Aides and their training.

##### **B. With Government of Rajasthan , Bihar**

- Concept of Sick Newborn Care Units at District and sub-district levels (now known as *the Purulia Model*) and Development of Sick Newborn Care Units at District Hospitals, Alwar (already Inaugurated) , Bharatpur (already Inaugurated ) and Dhosa all in Rajasthan
- Development of Sick Newborn Care Units at District Hospitals, Nalanda, Shekhpura , and Jehanabad

**C. With Indian Council for Medical Research**

- Newborn screening for Congenital Hypothyroidism and congenital adrenal hyperplasia – A multi-centric study (With co-investigator Dr. Tapas K Som)

**D. With Department of Science and Technology, Govt. of West Bengal**

- Developing an appropriate tool for Screening of Congenital Hypothyroidism in Neonates. (With co-investigator Dr. Suchandra Mukherjee)

**E. With National Institute for Cholera and Enteric Diseases, Kolkata**

- Gastric aspirate: An indicator of Neonatal sepsis.

**F. With Indian Institute of Technology ( KGP)**

- Analysis of Neonatal Cry

**Training & Service Experience:**

Serial No	Duration	Institution	Designation
1.	1997-2000	Resident (Junior & Senior), Department of Pediatrics	AIIMS; New Delhi
2.	2000-2003	R.M.O - Clinical Tutor*, Neonatal Unit, Dept. of Pediatrics <i>First NNF accredited Level-II unit among the state Govt. Institutions</i>	Institute of Post Graduate Medical Education & Research, Kolkata (West Bengal Medical Education Service, Govt. of West Bengal)
3.	2003-2005	Assistant Professor In-Charge, Neonatal Unit, Dept. of Pediatrics	Institute of Post Graduate Medical Education & Research, Kolkata (West Bengal Medical Education Service, Govt. of West Bengal)
4.	2005-Till 2011	Associate Professor & Head; Department of Neonatology <i>First independent Dept. of Neonatology among the state Government Institutions</i>	Institute of Post Graduate Medical Education & Research, Kolkata (West Bengal Medical Education Service, Govt. of West Bengal)
5	2011 - 2013	Professor of Neonatology and Head of Department	Institute of Post Graduate Medical Education & Research, Kolkata (West Bengal Medical Education Service, Govt. of West Bengal)
6.	<b>From 2013-Till date</b> : National Advisor RBSK Program		
* Resident Medical Officer cum Clinical Tutor post is equivalent to Senior Resident or Registrar elsewhere			

## **Contribution in the development of the Department of Neonatology at IPGMER and SSKM Hospital, Kolkata :**

- Joined as R.M.O cum Clinical Tutor. (senior registrar) in the Department of Pediatrics in 2000 at IPGMER & SSKM hospital
- Though a post graduate medical college, the neonatal unit had facilities for only level one plus neonatal care.
- Started working alone for development of this neonatal unit, and in 2002 it was declared as the first National Neonatology Forum, India accredited Level-II Neonatal Special Care Unit among Government Hospitals in West Bengal
- During 2003, it was declared as an advanced neonatal unit by the state government with separate teaching staff for Neonatology
- This unit is has advanced training facilities for all categories of health workers
- During 2006, this neonatal unit was declared as the first independent Department of Neonatology under the state government.
- Currently this Department has a 16-bed Neonatal Intensive Care Unit (NICU) with all neonatal monitoring facilities, the facility to ventilate 8 newborns at a time including a high frequency ventilator, preparation of Total Parental Nutrition under laminar hood, In-house facility for Side lab, X-ray, USG, ECHO, EEG, ECG, Bronchoscopy, BERA, ROP screening and management and a High-Risk Follow up and Early Intervention Clinic. Six more NICU beds would be added soon.
- Prof. D. Vidyasagar, from University of Illinois at Chicago, USA after visiting this department in early 2007 wrote, *"I am surprised why this unit should not be declared as level-III unit"*.

## **Contributions as team member in the development of Sick Newborn Care Units (SNCU) at :**

- District Hospital, Purulia, Purulia district, West Bengal (now known as the Purulia Model)
- G B Pant Hospital, Port Blair, Andaman & Nicobar Islands
- District Hospital, Suri, Birbhum district, West Bengal
- District Hospital, Kochbehar, Kochbehar district, West Bengal
- Sub-division Hospital, Islampur, Uttar Dinajpur district, West Bengal
- District Hospital , Alwar, Bharatpur and Dhosa all in Rajasthan

## **Contribution in the development of Sick Newborn Care Unit (SNCU) at :**

- Bankura Medical College, Bankura, Bankura district, West Bengal

All of these Sick Newborn Care Units are now functioning.

Contribution in the development of Sick Newborn Care Unit (SNCU) in rest of India at Rajasthan, Bihar, Madhya Pradesh and Orissa:

### Special Training:

- As a technical advisor for the Workshop of INCLEN-INDIA for **Developing a tool for screening for Neuro-developmental disabilities (NDST) for children 2 to 8 years and developing a NDST scale for of India, at Faridabad, November, 2005 funded by Autism Speaks partially**
- Workshop of INCLEN-INDIA for survey of IMNCI projects at different places of India, at Faridabad 12-14 September, 2006
- Application of Biostatistics in medical sciences, 3-week course at Christian Medical College, Vellore, June 2006
- Neonatal Resuscitation Program 2005 Trainers' Course, Varanasi, 2006

### National Trainer:

- Neonatal Resuscitation Program, 2005

### Publications

#### Index of Publications on Newborn:

\* Those in bold are international journals

#### Editorial

1. Basu, S., Singh, A. and Nair, G. B. Emerging Carbapenem Resistance in the Context of a New Metallo- $\beta$ -lactamase (NDM-1). *National Medical Journal of India* 23 (2010) 261-262.

#### Original Article

2. Jana, N., Barik, S., Arora N., and Singh, A. Tuberculosis in pregnancy: The challenges for South Asian countries. ***Journal of Obstetrics and Gynecological Research*. (2012) doi:10.1111/j.1447-0756.2012.01856.x**
3. Viswanathan, R., Singh, A., Basu, S., & Isaacs, D., Multi-drug resistant Gram negative bacilli causing early neonatal sepsis in India. ***Archives of Diseases in Childhood Fetal Neonatal Edition*. 2012 May; 97(3):F182-7.**
4. Rajlakshmi Viswanathan, Arun K Singh, Chiranjib Ghosh, Sudipta Dasgupta, Suchandra Mukherjee & Sulagna Basu. Profile of neonatal septicaemia at a district level sick newborn care unit. ***Journal of Health, Population and Nutrition*. 2012 Mar; 30(1):41- 8.**



5. Das P, Singh A K, Pal T, Dasgupta S, Ramamurthy T, and Basu S. Colonization of the gut with gram negative bacilli, its association with neonatal sepsis and its clinical relevance in a developing country. **Journal of Medical Microbiology**. **November 2011** 60:1651-1660
6. Roy S, Singh AK, Viswanathan R, Nandy RK, Basu S. Transmission of imipenem resistance determinants during the course of an outbreak of NDM-1 *Escherichia coli* in a sick newborn care unit. **J Antimicrob Chemother**. **2011 Dec; 66(12):2773-80**.
7. Viswanathan, R., Singh, A., Basu, S., Multi-drug resistant non-fermenting Gram negative bacilli in neonatal sepsis in India: a four year study : **Pediatrics and International Child Health** (accepted 2012)
8. Roy S, Viswanathan R, Singh A K, Das P, Basu S, Sepsis in neonates due to imipenem-resistant *Klebsiella pneumoniae* producing NDM-1 in India. **Journal of Antimicrobial Chemotherapy**, 66 (2011) 1411-1413
9. Roy, S., Viswanathan, R., Singh, A., Das, P. and Basu, S. Gut colonization by multidrug and carbapenem resistant *Acinetobacter baumannii* in neonates. **European Journal of Clinical Microbiology and Infectious Diseases** Dec.2010, 29(12):1495-1500
10. Viswanathan, R., Singh, A. K., Mukherjee, S., Mukherjee, R., Das, P., and Basu, S. Aetiology and antimicrobial resistance of neonatal sepsis at a tertiary care centre in Eastern India: a 3 year study. *Indian Journal of Pediatrics* 78 (2011) 409-412.
11. Roy S, Gaiind R, Mohanty S, Datta S, Singh AK, and Basu S, Neonatal septicaemia caused by diverse clones of *Klebsiella pneumoniae* and *Escherichia coli* harboring *bla*<sub>CTX-M-15</sub>, Indian Journal of Medical Research,( Communicated)
12. Viswanathan Rajlakshmi; Singh Arun Kumarendu; Basu, Sulagnab, Chatterjee Suparna; Roy Subhasree and Isaacs David, Multi-drug-resistant, non-fermenting, gram-negative bacilli in neonatal sepsis in Kolkata, India: a 4-year study, **Pediatrics and International Child Health** doi : <http://dx.doi.org/10.1179/2046905513Y.0000000072>

13. Subhasree Roy, Rajni Gaiind\*, Harish Chellani\*\*, Arun K. Singh & Sulagna Basu. Neonatal septicaemia caused by diverse clones of *Klebsiella pneumoniae* & *Escherichia coli* harbouring blaCTX-M-15, *Indian J Med Res* 137, April 2013, pp 791-799

#### Others

14. Viswanathan, R., Singh, A.K., Mukherjee, S., Mukherjee, R., Das, P. and Basu, S. An outbreak of neonatal sepsis presenting with exanthematous rash caused by *Klebsiella pneumoniae*. ***Epidemiology & Infection*** 139 (2011) 226-228.
15. Roy S, Mukherjee S, Singh A K, and Basu S. CTX-M-9 group extended-spectrum  $\beta$ -lactamases in neonatal stool isolates: emergence in India. *Indian Journal of Medical Microbiology*.,2011: 29 ( 3) 305-308
16. Rajlakshmi Viswanathan, Uttara Chatterjee, Biswanath Pal, Arun Singh, Uma Banerjee .**Role of autopsy in diagnosis of neonatal infections**. *Indian Journal of Pediatrics*(Under revision) 2011
17. Viswanathan, R., Singh, A. K , Ghosh C , Basu S, *Stenotrophomonas maltophilia* in early onset neonatal sepsis. *Indian Pediatrics* 48 (2011) 397-399
18. **Brevundimonas vesicularis: a new pathogen in newborn** : R Viswanathan, Dr AKSingh, Dr Ranajit Mukherjee,Dr Syamal Sardar,Dr Sudipta Dasgupta,Dr Suchandra Mukherjee . ***Journal of Pediatric Infectious Diseases*** 5 (2010) 1–3
19. Clinical microbiology for neonatal infections. R Viswanathan, AK Singh. *Indian Journal of Medical Microbiology* .2010.28(1):83
20. Roy S, Basu S, Dasgupta S, Singh A K and Viswanathan R, Carbapenem resistance in *Acinetobacter baumannii* isolated from blood of neonates with sepsis, *Indian Journal of Medical Microbiology* 28 (2010) 416-417
21. Viswanathan, R., Singh, A.K., Ghosh, C., Mukherjee, S., Sardar, S., and Basu, S Experience of setting up a microbiology service for rural facility based sick newborn care unit. ***Journal of Tropical Paediatrics***, 2012 Feb;58(1):80-81

22. Basu S, Das P, Roy S, De S, Singh A, Survey of gut colonization with *Stenotrophomonas maltophilia* among neonates, ***Journal of Hospital Infections***,2009, 72:183-185
23. Bose M, Viswanathan R, Dasgupta S, Singh AK. Towards a newborn screening strategy for hemoglobinopathies: a pilot study. *Indian Pediatrics*.2011;48-154-155

### **Papers on neonatal technology:**

- 24) D. P. Dogra, A. K. Majumdar, Shamik Sural, J. Mukherjee, S. Mukherjee and A. Singh, "**Toward Automating Hammersmith Pulled-To-Sit Examination of Infants using Feature Point based Video Object Tracking**", IEEE Transactions on Neural Systems & Rehabilitation Engineering, vol 20, No 1, pp 38-47, January 2012.
- 25) Bhattacharyya S., Biswas A., Mukherjee J., Majumdar A., Majumdar, B., Mukherjee S., and Singh A. "**Feature Selection for Automatic Burst Detection in Neonatal Electroencephalogram**", IEEE, Journal on Emerging Topics in Circuits And Systems. Vol. 1, No. 4, pp. 469-479, December 2011.
- 26.) S. Bhattacharyya, A.Roy, D.P.Dogra, A. Biswas, J. Mukhopadhyay, A. K. Majumdar, B. Majumdar, S. Mukherjee, A. Singh, "**Summarization of Neonatal Video EEG for Seizure and Artifact Detection**", NCVPRIPG, pp. 134 - 137, December 2011.
- 27.) D. P. Dogra, A. K. Majumdar, S. Sural, J. Mukhopadhyay, S. Mukherjee, A. Singh. "**Automatic Adductors Angle Measurement for Neurological Assessment of Post-neonatal Infants during Follow Up**".Lecture Notes in Computer Science, 2011, Volume 6744/2011, 160-166, DOI: 10.1007/978-3-642-21786-9\_28 also presented in the LNCS Proceedings of the 4th International Conference on Pattern Recognition and Machine Intelligence, Moscow,
- 28.) S. Roy, D. P. Dogra, S. Bhattacharya, B. Saha, A. Biswas, A. K. Majumdar, J. Mukhopadhyay, B. Majumdar, A. Singh, A. Paria, S. Mukherjee, S. Das Bhattacharya. "**A Web Enabled Health Information System for Neonatal Intensive Care Unit (NICU)**". *IEEE 2011 International Workshop on Web Services in Healthcare and Application*, WSHA, pp.451 - 458, July 2011.
- 29.) Sourya Bhattacharyya, Subhabrata Ghoshal, Arunava Biswas, Jayanta Mukhopadhyay, Arun Kumar Majumdar, Bandana Majumdar, Suchandra Mukherjee and Arun Kumar Singh, "**Automatic Sleep Spindle Detection in Raw EEG Signal**

**of Newborn Babies".** *International Conference on Electronics Computer Technology (ICECT), Kanyakumari, India, pp. 73-77, 2011.*

30.) Sourya Bhattacharyya, Jayanta Mukhopadhyay, Arun Kumar Majumdar, Bandana Majumdar, Arun Kumar Singh and Chanchal Saha, "**Automated Burst Detection in Neonatal EEG**". *International Conference on Bio-inspired System and Signal Processing (BIOSIG), Rome, Italy, pp. 15-21, 2011.*

31.) D. P. Dogra, K. Nandam, A. K. Majumdar, S. Sural, J. Mukhopadhyay, B. Majumdar, S. Mukherjee, A. Singh. "**A Tool for Automatic Hammersmith Infant Neurological Examination**". *International Journal of E-Health and Medical Communications, Vol. 2, No. 2, pp. 1-13, April-June 2011.*

32.) D. P. Dogra, S. Sinha, A. K. Majumdar, S. Sural, J. Mukhopadhyay, B. Majumdar, S. Mukherjee, A. Singh. "**Automatic Posture Estimation for Hammersmith Infant Neurological Examination**". *International Symposium on Medical Imaging-Perspectives on Perception and Diagnostics Organized in Conjunction with the Seventh Indian Conference on Computer Vision, Graphics and Image Processing, IIT Delhi, MA-202, 2010.*

33.) D. P. Dogra, K. Nandam, A. K. Majumdar, S. Sural, J. Mukhopadhyay, B. Majumdar, S. Mukherjee, A. Singh. "**A User Friendly Implementation for Efficiently Conducting Hammersmith Infant Neurological Examination**". *12th International Conference on E-Health Networking, Application and Services, Lyon, France, pp. 374-378, 2010.*

#### **Papers on community neonatology:**

34. Sen A, Mahalanabis D, Singh AK, K Som TK, Bandyopadhyay S. Development and Effects of a Neonatal Care Unit in Rural India. *The Lancet* **2005**; 366:27-28

35. Sen A, Mahalanabis D, Singh AK, Som TK, Bandyopadhyay S, Mehta P. District Level Sick Newborn Care Unit : A complementary approach to reduction of neonatal mortality. *J Neonatology* **2004**; 18(2): 48-55.

36. A Sen<sup>1</sup>, D Mahalanabis<sup>1</sup>, AK Singh<sup>2</sup>, TK Som<sup>2</sup> and S Bandyopadhyay. Impact of a district level sick newborn care unit on neonatal mortality rate: 2-year follow-up *Journal of Perinatology* **2008**; 29: 150-155.

37. Sen A, Mahalanabis D, Singh AK, K Som TK, Bandyopadhyay S, Roy S. Newborn Aides: An Innovative Approach in Sick Newborn Care at a District-level Special Care Unit. *Journal of Health, Population and Nutrition* **2007**; 25(4): 495-501

38. Sen A, Mahalanabis D, Mukhopadhyay S, Chakrabarty K, Singh A K, Bisai S, Chakrabarty M, Halder D, Islam MA. 2005. Routine use of antimicrobials by

pregnant Indian women does not improve birth outcome; a randomized controlled trail 2005. **Journal of Health Population and Nutrition,2005.** 23 ; 236-244

**Others:**

- 39.Chatterjee S, Mondal A, Mukherjee S, Singh AK. Drug utilization study in a Neonatology unit of a tertiary care hospital in eastern India. **Pharmacoepidemiology and Drug Safety 2007**; Vol. 16
- 40.Singh AK. Wilson"s disease –unusual presentation. Indian Journal of Pediatrics 2004. 71; 937-939
- 41.Singh AK. Distal renal tubular acidosis with severe bony deformity and multiple fractures. Indian Pediatrics 2001.38;1301-1305
- 42.Singh AK, Granular acute lymphoblastic leukemia with hyper eosinophilic syndrome. **Annals of Hematology 2000** : 79 ; 272-274
- 43.Singh AK. I-cell disease (mucopolidosis 11). Indian Journal of Pediatrics 2000; 67; 9683-687
- 44.HIV/AIDS in children. Journal of International Medical Sciences Academy 1998 .11; 179 -183
- 45.Subhasree Roy, Saswati Datta, Rajlakshmi Viswanathan, Arun K. Singh and Sulagna Basu. Tigecycline susceptibility in Klebsiella pneumoniae and Escherichia coli causing neonatal septicaemia (2007–10) and role of an efflux pump in tigecycline non-susceptibility **Journal of Antimicrobial Chemotherapy Advance Access published January 18, 2013.** J Antimicrob Chemother 10.1093/jac/dks535

- Those in bold are international journals