

## Curriculum Vitae Dr G D Puri

1. Name : Dr. Goverdhan Dutt Puri
2. Designation : Executive Director AIIMS Jodhpur,  
AIIMS Rajkot
3. Mobile number : 9815199717
4. Email Id : gdpuri007@hotmail.com,  
gdpuri007@gmail.com
5. Date of Birth & Age : 18<sup>th</sup> June 1957
6. Academic Qualifications: MBBS, MD, PhD



### 7. Teaching Experience

Sr. No.	Name of Office/ Organization where employed with address	Post held and service/cadre to which it belongs	From	To	Total period
1.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	Senior Resident	02.02.1983	18.02.1986	3yrs
2.		Assistant Professor	19.02.1986	30.06.1990	4 ½ yrs
3.		Associate Professor	01.07.1990	30.06.1994	4 yrs
4.		Additional Professor	01.07.1994	12.09.1999	5yrs
5.	<b>Dept of Anaesthesia and Critical care, SGPGIMS, Lucknow</b>	<b>Professor and Head</b>	<b>13.09.1999</b>	<b>30.06.2001</b>	<b>1 yrs 10 months</b>
6.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	<b>Professor</b>	<b>01.07.2001</b>	<b>31.03.2016</b>	<b>15yrs 9 months</b>
7.	Intensive Care, PGIMER, Chandigarh	<b>Professor and Head</b>	01.04.2016	30.06.2022	6 ¼ yrs
8.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	<b>Professor,</b>	11.01.2023 onwards		<b>9 months</b>

### 8. Years of service as Professor or as a Principal of Health Science Education

Years of service as Professor	24 years as Professor
Years of Service as Dean	2 ½ Years as Dean PGIMER

### 9. Details of Service (Institution wise)

Sr. No.	Name of Office/ Organization where employed with address	Post held and service/cadre to which it belongs	From	To	Total period
1.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	Senior Resident	02.02.1983	18.02.1986	3yrs
2.		Assistant Professor	19.02.1986	30.06.1990	4 ½ yrs
3.		Associate Professor	01.07.1990	30.06.1994	4 yrs
4.		Additional Professor	01.07.1994	30.06.2001	7 yrs
5.	<b>Dept of Anaesthesia and Critical care, SGPGIMS, Lucknow</b>	<b>Professor</b>	<b>13.09.1999</b>	<b>30.06.2001</b>	<b>1 yrs 10 months</b>
6.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	<b>Professor</b>	<b>01.07.2001</b>	<b>30.06.2022</b>	<b>21 yrs</b>
7.	Intensive Care, PGIMER, Chandigarh	Professor and Head	01.04.2016	30.06.2022	6 ¼ yrs
8.	Department of Anaesthesia & Intensive Care, PGIMER, Chandigarh	<b>Professor,</b>	11.01.2023 onwards		<b>9 months</b>

**10. Field(s) of specialization:**

**Anesthesiology and Intensive Care (Clinical experience more than 42 years)**

- **Lead anesthesiologist** for more than 30000 patients across major thoracic surgeries, vascular surgeries, abdominal surgeries and congenital cardiac surgeries including more than 10000 open heart surgeries, in all ages from neonates to geriatric patients.
- Led the team to **set up as well as run the Advanced Cardiac Centre at PGI**, with a five -fold increase in cardiac surgical volumes from 2009 to 2019.
- **Led the intensive care units** in different parts of PGI, including the main intensive care unit and managed over 10000 critically ill patients.
- Led the **cardiothoracic surgical intensive care** – Managed post Cardiac surgery patients till discharge to a step-down unit.
- Started the **Heart Transplant program** at PGIMER in 2013 & **Lung Transplant** in 2017.
- Led the quick reaction emergency medical team organization during visits of dignitaries to the region.
- **Set up intensive care facilities for Covid hospital** set up at Nehru Hospital Extension at PGIMER.
- **Managed the dedicated COVID Hospital including six ICUs and two Covid operating rooms from March, 2020 to Dec 2021**- more than 800 critically ill COVID patients treated in the ICUs in one year. In addition [as Head of the COVID management team], guided management of more than 7000 moderate to severe COVID patients.
- **Operationalize the PGIMER Satellite centre at Sangrur as Chairman of PGIMER Satellite centre operational committee and Functional Committee: Regular OPDs started Operating room facilities activated**

**11. Details of experience in Administration in the following categories: -**

Sr. No.	Designation	Particular of Organization	From	To	Total Period
1.	<b>Dean (Academic)</b>	PGIMER, Sector 12, Chandigarh, India	23.03.2020	30.06.2022	2 ¼ years
2.	<b>Dean (Research)</b>		01.11.2019	23.03.2020	5 months
3.	<b>Sub-Dean (Academic)</b>		01.04.2018	31.10.2019	1 ½ years

4.	<b>Sub-Dean (Research)</b>		01.08.2017	31.03.2018	8months
5.	<b>Head, Department of Anesthesia &amp; Intensive Care, PGIMER, Chandigarh, India</b>		01.04.2016	30.06.2022	6 ¼ years
6.	<b>Chairman PGI Satellite centre Sangrur Operationalization and Functional Committees</b>		22.01.2023		9 months
7.	<b>Chairman of Advanced Cardiac Centre (ACC)</b>		2009	30.06.2022	13 years
8.	<b>Chairman Nehru Hospital Extension BlockCOVID Hospital</b>		2020	Dec 2021	1 ½ yrs
9.	Member , Governing body of PGIMER		April 2020	30.06.2022	2 yrs
10.	Chairman , Education committee		April 2020	30.06.2022	2 yrs
11.	Chairman Dean doctoral committee		April 2020	30.06.2022	2 yrs
12.	Chairman Institute Purchase committee (IPC)		July 2020	31.10.2021	1 yr
13.	Member Standing Academic Committee of PGIMER		April 2018	30.06.2022	4yrs
14.	Head of Biomedical Instrumentation and devices HUB centre for innovation, clinical validation and testing devices hub		Mar 2018	June 2022	4 yrs
15.	Chairman, Operation theatre Management committee, PGIMER		July 2017	Dec 2021	4 yrs
16.	Chairman , Estate Committee, PGIMER		Feb 2017	Dec 2021	4 yrs
17.	Chairman Non Plan surgical store committee , PGIMER		2017	June 2022	5yrs
18.	Chairman Committee for reviewing medical		Nov 2014	June 2022	8 yrs

	gases usage in PGI, PGIMER				
19.	Professor In-charge for capacity building initiatives with Boston Children Hospital, USA & Children Heart Link USA for development of pediatric cardiac program		2011	June 2022	
20.	Chairman of Monitoring Committee, Advanced Cardiac Centre project		2006		3 yrs
21.	<b>Professor In charge Cardiac Anesthesia</b>		<b>2005</b>	<b>June 2022</b>	<b>17 years</b>
22.	Professor In-charge, Main ICU, PGIMER		2004	2009	5 yrs
23.	<b>Professor &amp; Head, Department of Anesthesiology and Critical Care (On deputation)</b>	<b>Sanjay Gandhi Post Graduate Institute of Medical Sciences (SGPGIMS), Lucknow, India</b>	13.09.1999	30.6.2001	2 years
24.	Consultant In Charge, Main ICU	PGIMER, Sector 12, Chandigarh, India	1994	1998	5 yrs
25.	Member Operation theatre Management committee	PGIMER, Sector 12, Chandigarh, India	2003	2017	14 yrs
26.	Member of Drug Committee	PGIMER, Sector 12, Chandigarh, India	1995	1998	4 yrs
27.	Member of Thesis committee	PGIMER, Sector 12, Chandigarh, India	1994	1999	5 yrs
28.	Member of Surgical store committee	PGIMER, Sector 12, Chandigarh, India	1994	1998	5 yrs
29.	Consultant In charge Operation Theatre Assistants (OTA)	PGIMER, Sector 12, Chandigarh, India	1994	1998	5 yrs

➤ **Other Administrative Societal and policy making positions**

- Member Institute body AIIMS, Awantipora
- Member Advisory Expert Committees of DST for Technology Development Program
- Chairman Anaesthesiology & Resuscitation Division committee of Bureau of Indian Standards
- Chairman of Research Quality Committee (Medical) of Baba Farid University (BFU), Faridkot – monitoring quality of research

- Group Head "Expert group for critical care" for Covid management in Punjab
- Group Head "Expert group for specialised training for Covid" in Punjab
- Chairman Institute Ethical Committee AIMS Mohali
- Member Academic Council , BFU, Faridkot
- Member Task force PVRI for guidelines for Imaging in Pulmonary artery hypertension
- Member of Task force for Pulmonary Vascular Research Institute London for setting guidelines for catheterization of children with PAH
- **President Society of Transesophageal Echocardiography**
- **Member Executive , Pulmonary Vascular Research Institute (India).**
- **President of Indian Society of Anaesthetists Chandigarh Branch 1993-95.**
- **Secretary Indian Society of Anesthetists Chandigarh Branch 1988-90.**
- **Vice President and Acting President Junior Doctor's Association (JDA) PGIMER 1983-84.**
- **Organized > 40 workshops, CMEs and National and International conferences over past 40 years**

## Achievement in Academics, Clinical practices, Research & Innovation

### A. Setting up Clinical facilities and infrastructural development

- 1 **Setting up of Advanced Cardiac Centre** and up gradation of cardiac services
  - a. Led the team to **set up the Advanced Cardiac Center (ACC)** in 2009 as a center of excellence for cardiovascular care. Initiated a collaboration between the ACC, Boston Children's Hospital, USA and Children Heart Link organization to facilitate the training of surgeons, anesthesiologists, perfusionists, and paramedical staff for improving pediatric cardiac care.
  - b. Started successful Heart and Lung Transplant program at ACC
  - c. Started ECMO facilities for both cardiac as well as respiratory critical illnesses
  - d. Conceptualized and pioneered "**Perioperative and Critical care Transoesophageal echocardiography hands--on teaching program**" and conducting this annual workshop for last fifteen years at PGIMER for the benefit of Perioperative physicians, critical care physicians, cardiologists and surgeons. Started first dedicated perioperative echocardiography journal "**Journal of Perioperative Echocardiography**".
  - e. **Editor-In-Chief of the "Journal of Perioperative Echocardiography"**.
- 2 **Setting up of Covid Hospital at PGI Chandigarh**
  - a. **Set up the COVID-19 hospital at PGIMER** in record time with comprehensive advanced diagnostic and therapeutic facilities. I was head of Covid management at PGIMER both during first and second waves of Covid 19 pandemic for almost two years since March, 2020 – Dec 2021. More than 7000 severely ill COVID patients treated in the ICUs and HDUs. Made extensive use of technology for optimum patient care. I introduced **Remote view monitoring** of critically ill ICU patients on clinicians mobile phone for keeping constant expert watch on patients' condition for timely assessment and management. I pioneered **remote view controlled donning and doffing** which decreased infections amongst HCWs.
  - b. My innovative idea of using **six minute walk test for triaging non hypoxic Covid patients** in emergency helped in screening vulnerable patients for hospital admission and has been put to use by clinicians all over the country
- 3 **Augmentation of Covid care facilities in adjacent states**

- a. Through online classes , personal visits to their hospitals ,providing training to their HCWs and also tele-consultations for the treatment of critically ill Covid patients. **Mentored the COVID care facilities in the state of Punjab** by regular interaction with administrators as well as clinicians of the state. Twenty four hour whatsapp helpline for clinical support of the doctors working in Covid care
- 4 **Setting up of Comprehensive pre-anesthesia check up clinic**
  - a. Introduced **comprehensive pre-anesthesia check up clinic** with one-stop facility of investigations like ECG, pulmonary function testing as well as echocardiography, which has helped minimize pre-surgery waiting time and other hassles.
- 5 **Biomedical instrumentation and devices Hub**
  - a. Set up North Zone's first **Biomedical instrumentation and devices Hub** at PGIMER, Chandigarh, funded by DST. It is designed to build PGIMER Chandigarh as a Hub of biomedical innovation, in collaboration with other partner institutions like IIT Ropar, Central Scientific instrument organization (CSIO). During a short span of 4yrs, ten **indigenous biomedical instruments have been developed at this HUB.**
  - b. A **biomedical devices testing centre**, first of its kind in the region, has also been setup at this "Biomed Hub" for testing and standardising routinely used medical equipment like monitors, ventilators and syringe pumps.
- 6 **Electronic medical record**

An indigenous **Anesthesia Information Management System (AIMS)** - Electronic Medical Record system comprising of hardware and software solutions has been Conceptualised, designed and implemented at PGIMER – First in any public sector hospital in India. In addition to providing improved medical record keeping & critical event research- AIMS provides a platform for high end application of machine learning and Artificial Intelligence for predicting and preventing the critical events, with necessary timely intervention improving patient safety.
- 7 **Started the super specialty programs**
  - a. DM in Cardiac Anaesthesia
  - b. DM in Paediatric Anaesthesia
  - c. DM in Intensive Care
  - d. DM in Trauma Anaesthesia and Acute care
  - e. Fellowship in Solid organ Transplant Anaesthesia
  - f. Fellowship in Obstetric Anaesthesia
- 8 **Mentoring Open heart surgery program at GMCH Amritsar**
- 9 **Mentoring Open heart surgery program at GMCH Chandigarh.**
- 10 **Collaborated with the SNM Hospital in Leh**
  - a. For high altitude anesthesia research project and regularly providing mentorship and advice for difficult case management in SNM Hospital.
  - b. Setting up their ICU at SNM Hospital Leh.
  - c. First use of total intravenous anesthesia at high altitude - significantly high anesthetic requirement in highlanders.

## **B. Innovations / New Techniques/ Biomedical Instrumentations**

**Designed and Developed following, Biomedical equipment's/Instruments**

### **I. Closed Loop Anaesthesia delivery system (CLADS)**

- a. World's first totally Automated control (computer controlled) Anaesthetic drug delivery system.

- b. **5 patents filed. US Patent US9,108,013B2 granted in 2015, Indian Patent granted in 2016;European Patent EP2205298A1 granted in 2020**
  - c. **CLADS Prototype selected for Display at Israel Innovation Conference MIXiii 2014 in TelAviv, Israel**
  - d. **6<sup>th</sup>FICCI (Federation of Indian Chamber of Commerce & Industry) Health Care Excellence award 2014 for "Excellence in Health Care Technology" for developing "CLADS".**
  - e. **Technology transferred to industry for product manufacturing and commercialization**
- II. **Close loop Arterial Blood pressure control system (CLAPS)**
  - a. **For automated control of blood pressure in critically ill patients in ICU and Operating room by automated control of vasopressor drugs based on continuous online feedback of patient hemodynamic (HR, Blood pressure, CVP, cardiac output) from vital sign monitor.Clinically tested and Patent filed**
- III. **Indigenous low cost InfusionAlarm**
  - a. **To pre alert the HCW and patients' attendant about completion of infusion to prevent blockade of cannula.**
  - b. **Patent granted ;Indian Patent No. 419592 Technology transferred to industry – product in market**
  - c. **9<sup>th</sup> FICCI Health care excellence award 2017 for innovative technology for developing "Infusion Alarm"**
- IV. **Indigenous low cost Pupillometer**
  - a. **Objective assessment of papillary size and reaction in clinical situations in ICU in patients with head injury or other neurological conditions affecting the pupil size and reaction**
- V. **Indigenous Cricoid pressure sensor**
  - a. **Prototype made – tested - Patent filed**
- VI. **Indigenous High flow nasal cannula for oxygen delivery to sick hypoxic Covid and non Covid patients - Prototype ready and lab tested**
- VII. **Designed and developed an indigenous Anesthesia Information Management System (AIMS) comprising of hardware and software solutions with the help of Infosys technologies. An artificial intelligence based forecasting model for non-linear multivariate biomedical time series is being developed on the data being acquired thru this system**
- VIII. **Indian Pharmacokinetic (Pk) model of Propofol.**
  - a. **Prepared first PkPd model for propofol in Indian population which has been used to optimally dose propofol while anaesthetizing patients in clinical practice**
- IX. **Ventilation normogram for mechanical ventilation in Indian population:**
  - a. **Prepared first ventilation normogram for normocapnic ventilation in Indian patients undergoing surgery**

### **C. Awards**

- **State Award by Government of Punjab (2021) for exemplary services rendered during Covid-19**
- **9<sup>th</sup> FICCI (Federation of Indian Chamber of Commerce & Industry) Health care excellence award 2017 for innovative technology for developing "Infusion Alarm" under the category of Patient Safety**
- **6<sup>th</sup>FICCI (Federation of Indian Chamber of Commerce & Industry) Health Care Excellence award 2014 for "Excellence in Health Care Technology" for developing closed loop anesthesia delivery system "CLADS".**

- PN Berry Scholarship 1993 from PN Berry Educational Trust UK
- British Journal of Anesthesia Scholarship 1989
- Prof Kamra's Oration 2014 - "Anesthetic depth management-the Art and Science of it" delivered at NZ-ISACON, Jammu
- Silver Medal for standing first in Pathology in MBBS
- Bronze medal (second order) in MD Anaesthesia

#### **D. PATENTS**

##### **a) Patents Filed -9:**

- **Closed loop anaesthesia delivery system (CLADS)** for computer controlled propofol anaesthetic drug delivery - **CLADS 502/DEL/2003**
- **Improved Automatic Anaesthesia Delivery System (IAADS) for computer controlled closed loop intravenous as well as inhalational anaesthetic agents delivery. Patent filed in India as well as Europe and USA**
  - India 2158/DEL2007. – GRANTED
  - Europe EP Appln.No.08840169.0 (PCT/IN08/000674) - Granted
  - US Pat.Appln.No.12/683.000 (PCT/IN08/000674) GRANTED
- **Improved technique of performing subclavian cannulation patent file no 640/DEL/2010 – under consideration**
- **Infusion Alarm Application No.: 201611029938 –Granted Indian Patent No. 419592**
- **Closed Loop blood Pressure control system(CLAPS)Patent Application No 202111039378**
- **Indigenous Cricoid pressure sensor Appl 202111062180 filed 31/12/21 published 30/06/23**
- **AI based Medical Nursing Remote Control Trolley TROLLEY SYSTEM, DEVICE AND METHOD FOR CONTROLLING NAVIGATION OF THE TROLLEY SYSTEM - Indian Patent Application Number: 202111006537 Filing Date: 16/02/2021**
- **Indigenous High flow nasal cannula "AN OXYGEN DELIVERY APPARATUS" (Application No.: 202411032907)**

##### **b) Patents granted-4 :**

- US Patent no US9,108,013 B2 – Granted 2015**
- India 2158/DEL2007. – GRANTED 2016**
- European patent no EP2205298A1 – Granted 2020**
- Indian patent Infusion Alarm Indian Patent No. 419592**
- Indian Patent Application Number: 202111006537 TROLLEY SYSTEM, DEVICE AND METHOD FOR CONTROLLING NAVIGATION OF THE TROLLEY SYSTEM**

#### **E. Technology Transfer**

- **Technology Transfer of Closed loop anesthesia delivery system - 2015**
- **Technology Transfer of Infusion Alarm (IV Alert) to Clarity Medical Systems Ltd, Mohali -2017**
- **Technology Transfer of Target controlled infusion (TCI) pump to Clarity Medical - 2019**

#### **F. Publications**

Over 215 publications in peer-reviewed journals; Over 4500 citations

#### **G. Members of Professional Bodies**

- Fellow of National Academy of Medical Sciences, India.
- Fellow of Pulmonary Vascular Research Institute, UK.

- Member of Society of Cardiovascular Anaesthesiologists, USA.
- Member of American Society of Anaesthesiologists,
- Member of Indian Society of Anaesthesiologists.
- **President** Society of Transesophageal Echocardiography.

## H. Extramural Research Projects / Grants

### ▪ As Principal Investigator / co investigator of Extramural research grants/projects

Year	Name of the project	Funding agency	Collaborating institution	Grant Lakhs (INR)
	<b>AS Principal Investigator</b>			
1995-1997	Perioperative myocardial infarction in coronary artery disease patients undergoing non-cardiac surgery	Dept. of Science and Technology , Chandigarh	Nil	2.0
2003-2005	Designing of closed loop anesthesia delivery system (CLADS)	Department of Electronics and Information Technology (Deity), GOI, New Delhi	Semiconductors Limited, Mohali, Punjab	25.0
2008-2011	Multicenter Evaluation of closed loop anesthesia delivery system (CLADS)	Department of Electronics and Information Technology, Ministry of Communication and Information Technology, GOI, New Delhi	Sir Ganga Ram Hospital, New Delhi Govt. Medical College, Chandigarh, Govt. Medical College & Rajindra Hospital , Patiala, Dayanand Medical College Hospital Ludhiana SNM, Hospital Leh , Ladakh,	30.0
2014-2016	Designing of closed loop automated blood pressure control system (CLAPS)	Department of Science and Technology, New Delhi	IIT, Ropar	55.0
2017-2019	Anaesthesia information management system (Periop Electronic medical record)		Infosys Ltd.	
2018-2023	Setting up of Biomedical Instrumentation and Devices Hub – Centre of innovation design , clinical validation and testing	DST Department of Science and Technology, New Delhi	IIT Ropar, SCL Mohali, CSIO Chandigarh, Panjab University Chandigarh.	9.4 crores
2018-2021	Development Indigenous Infusion Alarm – Pre alert	Department of Science and Technology, New Delhi	Clarity Medical Systems Ltd	12 Lakhs
	<b>As Co-investigator</b>			

2015-2016	"The Effect of Dexmedetomidine on Propofol Requirements During Anaesthesia Administered by Bispectral Index-Guided Closed-Loop Anesthesia Delivery System (CLADS):	Research Development Program, Sir Ganga Ram Hospital,	Sir Ganga Ram Hospital, New Delhi	3.0
2021	An artificial intelligence based forecasting model for non-linear multivariate biomedical time series	Department of Science and Technology, New Delhi	IIT Ropar	32 Lakhs
2022	"Design & Development of Depth of Anesthesia Monitoring System using artificial intelligence and machine Learning" funded by MeitY,	Department of Electronics and Information Technology, Ministry of Communication and Information Technology, GOI, New Delhi Deity	NIELT, Imphal, Manipal Technical University Imphal, JNIMS, Imphal.	4.5 crore out of which 48 lakh for PGI