

## **CURRICULUM VITAE**

**SYED ATHER ENAM, S.I.**

### **EDUCATION, TRAINING, & DEGREES**

- 2012      **AMERICAN BOARD OF NEUROLOGICAL SURGERY**  
Houston, USA  
**Diplomate** American Board of Neurological Surgery  
(*Recertified 2012; original certification 2002*)
- 2003      **AMERICAN COLLEGE OF SURGEONS, Chicago, IL, USA**  
**FACS** (Fellow of American College of Surgeons)
- 2002      **ROYAL COLLEGE OF PHYSICIANS & SURGEONS OF CANADA**  
Ottawa, Canada.  
**Specialist Certificate in Neurosurgery**
- 2002      **ROYAL COLLEGE OF PHYSICIANS & SURGEONS OF CANADA**  
Ottawa, Canada.  
**FRCS** in Division of Surgery (Fellow of Royal College of Surgeons)
- 2000      **ROYAL COLLEGE OF SURGEONS IN IRELAND** Dublin, Ireland  
**FRCS** (Fellow of Royal College of Surgeons).
- 1992-1998      **HENRY FORD HOSPITAL, Detroit, MI, USA**  
Residency training in **Neurosurgery** (*outstanding resident award*).
- 1991-1992      **STATE UNIVERSITY OF NEW YORK AT BUFFALO, NY, USA**  
Residency training in **General Surgery**.
- 1987-1991      **NORTHWESTERN UNIVERSITY** Evanston, IL, USA  
**Ph.D.** in the field of **Neuroscience** from Northwestern University Institute for Neuroscience. (*Dean's Fellow*)

- 1980-1987     **DOW MEDICAL COLLEGE** Karachi, Pakistan  
                  **M.B.B.S.**, April 1987.
- 1977-1979     **CADET COLLEGE HASANABDAL** Hasanabdal, Pakistan  
                  **I.Sc.** (Intermediate of Science; Pre-Medical). (*Quaid-e-Azam scholarship  
& medal*).

**CURRENT APPOINTMENTS**

- 2015 – present     Chair, Department of Surgery, Aga Khan University,  
Karachi, Pakistan
- 2011 – present     Faculty of Neurosurgery, College of Physician and Surgeons,  
Pakistan
- 2011 – present     Professor of Neurosurgery, Aga Khan University, Karachi,  
Pakistan
- 2009 – 2011        Core Research Faculty, Aga Khan University, Karachi,  
Pakistan
- 2008 – present     Visiting Professor, Dow University of Health Sciences,  
Karachi, Pakistan
- 2004 – present     Joint appointment: Department of Biological and Biomedical  
Sciences, Aga Khan University

### **PREVIOUS HOSPITAL APPOINTMENTS**

- 1998- 2003            Henry Ford Hospital, 2799 W. Grand Blvd, Detroit, MI 48202, USA  
Attending, Senior Staff Neurosurgeon
- 1998- 2003            St Joseph's Mercy of Macomb Hospital, 15855 19 Mile Road, Clinton Township, MI 48038, USA  
Attending Neurosurgeon
- 2001-2003            Oakwood Hospital and Medical Center, 18101 Oakwood Blvd, Dearborn, MI 48123, USA  
Consultant Neurosurgeon
- 2002-2003            William Beaumont Hospital, 3601 W. Thirteen Mile Rd, Royal Oak, MI 48073, USA  
Attending Neurosurgeon
- 2002-2003            William Beaumont Hospital, 3601 44201 Dequindre Road, Troy, MI 48085, USA  
Attending Neurosurgeon

### **PREVIOUS ACADEMIC AND ADMINISTRATIVE APPOINTMENTS**

- 2003 – 2011            **Head of Neurosurgery and Associate Professor, Aga Khan University, Karachi, Pakistan**
- 2004 – 2009            **Director, Neurosurgery Residency Program, Aga Khan University, Karachi, Pakistan**
- 2001 – 2003            **Vice-Chairman** for Community Practices, Department of **Neurosurgery, Henry Ford Hospital, Detroit, MI, USA**
- 2002 – 2003            **Director, Clinical Research, Graduate Medical Education, St Joseph's Mercy of Macomb Hospital, MI, USA**

- 1998 – 2003                    **Chief, Neurosurgery Associates of Macomb,**  
An affiliate of St. Joseph's Mercy of Macomb Hospital, and Henry Ford Hospital, MI, USA.
- Jul 1998 – Dec 2003           **Senior Staff,** Department of Neurosurgery,  
**Henry Ford Hospital,** Detroit, MI, USA.
- Jul 1997 - Jun 1998:           **Chief Resident,** Department of Neurosurgery,  
**Henry Ford Hospital,** Detroit, MI, USA.
- Jul 1991 - Jun 1992:           **Clinical Assistant Instructor,**  
**State University of New York at Buffalo,** NY, USA.
- Sep 1989 - Jun 1991:           **Tutor,** Department of American-African Student  
Affairs, **Northwestern University,** Evanston, IL,  
USA.
- Sep 1989 - Jun 1991:           **Research Assistant,** Dr. Klein's Laboratory,  
**Northwestern University Institute for  
Neuroscience,** Evanston, IL, USA.
- Sep 1988 - Jun 1989:           **Teaching Assistant,** Dept of Neurobiology &  
Physiology, **Northwestern University,** Evanston, IL,  
USA.

## **HONORS AND AWARDS**

- 2016            **Sitara-e-Imtiaz**, conferred by The President of Pakistan. Announced on 14<sup>th</sup> August, 2016. Awarded in the Investiture Ceremony at the President House, Islamabad, on 23<sup>rd</sup> March, 2017
- 2015            **Vice President**, Society of Spine Surgeons of Pakistan.
- 2015            **Master Surgeon** Award, by Association of Abdalians, Karachi Chapter.
- 2007            **Founding President** of Pakistan Society of Basic and Applied Neuroscience, (Registered)
- 2005            **Personality of the week**, KalPoint PWs Forum, kalsoft.com (Address URL)  
<http://www.edupk.com/pow/modules.php?name=News&file=article&sid=156>)
- 2004            **Excellence Award in Neurosurgery**, Karachi, Pakistan  
Pakistan Society of Neurosurgeons
- 2002            **Physician of the Year Medallion Award**,  
St Joseph's Mercy of Macomb Hospital, MI, USA
- 1998            **Outstanding Resident Award**,  
Henry Ford Hospital, Detroit, MI, USA
- 1995-2004     Marquis Who's Who Publication, NJ, USA:
- **Who's Who in the World**, Edition 12, 16, 17, 18.
  - **Who's Who in Science and Engineering**, Edition 3, 5.
  - **Who's Who in Medicine and Healthcare**, Edition 2, 3.

- **Who's Who in America**, Edition 52, 53, 54, 55.

- 1991 **Sigma Xi Graduate Students Research Symposium Award**,  
Northwestern University, Evanston, IL, USA
- 1991 **First Prize**, Annual Student Research Competition,  
Midwest Society of **Electron Microscopy**, Wheaton,  
Illinois, USA.
- 1991 Elected to **Sigma Xi Research Society**, USA
- 1990 **American Health Assistance Foundation Fellowship**.
- 1987-1988 **Dean's Fellow**,  
Northwestern University, Evanston, Illinois, USA
- 1987-1988 **University Fellowship**,  
Northwestern University, Evanston, Illinois, USA
- 1982 **Merit List**,  
Dow Medical College, University of Karachi, Pakistan.
- 1978-1979 **President, Biology Club**,  
Cadet College Hasanabdal, Pakistan.
- 1977-1979 **Quaid-e-Azam National Scholarship**,  
Sargodha Board, Punjab, Pakistan.
- 1977 **Quaid-e-Azam Medal**,  
Sargodha Board, Punjab Pakistan.

**COURSES, CERTIFICATION & LICENSURE**

- 2017            BLS (Basic Life Support) – Aga Khan University, Karachi.
- 2015            9th Congress of the European Pain Federation EFIC Refresher Course  
(Sep 2-5), Vienna, Austria.
- 2014            AOSpine Advanced Course: Degenerative Spine (Nov 14-15), Riga,  
Latvia
- 2014            6 Pillar Approach Parafascicular Surgery of the White Matter,  
Aurora Research Institute (Feb 28 – Mar 1), Milwaukee, WI, USA,
- 2013            Clinical Observership in Neurosurgery, International  
Neuroscience Institute, (Mar 10-15) Hannover, Germany
- 2013            AOSpine Masters Course: Degenerative Spine. (May 2-3).  
Lucerne, Switzerland.
- 2012            AOSpine Masters Course: Spinal Trauma. (November 13-14).  
Prague, Czech Republic.
- 2011            Training for Chairpersons. AOSpine – (September 23-24),  
Zurich, Switzerland
- 2010            Protecting Human participants. Web course (April 22),  
Certificate No. 436969. The National Institutes of Health,  
Office of Extramural Research, Baltimore, MD, USA.
- 2010            US Spine Master Course; Minimally Spine Surgery  
Techniques (May 23 – 27) Dubai, UAE.

- 2010 Patient Safety Workshop. Aga Khan University. August 10. Karachi, Pakistan.
- 2009 Minimally Invasive Spine Techniques update (December 14-28) Henry Ford Hospital, Detroit, Mi, USA
- 2009 Endoscopic/Minimally Invasive Spine Surgery – 1<sup>st</sup> EasyGo Hands-on workshop: Endoscopic approaches. June 25-27) Mainz, Germany
- 2009 US Spine Master Course – Advances in deformity management (May 28 – June 1) Dubai, UAE.
- 2009 ACLS Course – Aga Khan University.
- 2008 US Spine Masters Course (Feb 19-21) Dubai, UAE.
- 2007 Current and Emerging Concepts in Complex Spine Surgery (Feb 7-9) Abu Dhabi
- 2006 13<sup>th</sup> Endoscopic Neurosurgery Workshop (November 12-15) University of Ghent, Belgium
- 2006 ACLS course – Aga Khan University
- 2006 Spine Forum by Pakistan Orthopedic Association, Aga Khan University (September 16-17)



- 2004 College of Physicians and Surgeons of Pakistan Supervisor Workshop:
- Education Planning & Evaluation.
  - Research Methodology, Biostatistics & Medical Writing.
  - Assessment of Competence.
  - Supervisory Skills.
- 2002 Minimal Access Spinal Technologies, Henry Ford Hospital, Detroit, MI, USA.
- 2000 Advanced Surgical Techniques for Spinal Fusion, Toronto, ON, Canada
- 2000 Advanced Neuro MR Imaging, William Beaumont Hospital, Royal Oak, MI, USA
- 2000 Minimally Invasive Spinal Surgery: Technique for Percutaneous Electrothermal Treatment of Discogenic Pain, Ann Arbor, MI, USA
- 1999 Lumbar Interbody Fusion of the Spine, Detroit, MI, USA
- 1997 Microsurgery Techniques Course, Detroit, MI, USA
- 1997 Physician License, Board of Medicine, State of Michigan, USA.
- 1994 Midas Rex Institute, Advanced Pneumatic Instrumentation for Surgical Procedures, TX, USA.

- 1993 Federation of Licensing Examination (FLEX), PA, USA.
- 1992 Advanced Trauma Life Support provider, American College of Surgeons.
- 1991 Advanced Cardiac Life Support provider, American Heart Association.
- 1991 Child abuse and maltreatment identification, NY State Education Department, USA.
- 1987 Pakistan Medical & Dental Council, Islamabad. Certificate No. 13847-S
- 1987 Educational Commission for Foreign Medical Graduates, Certificate No. 392-882-7. PA, USA.

### **LEADERSHIP COURSES AND WORKSHOPS**

- 2017 “Science community and Pakistan’s Challenges of Health and Nutrition in the context of Sustainable Development Goals” – A Workshop on Health and Sustainable Developmental Goals in Pakistan. Federal Ministry of Health, Pakistan Academy of Sciences, The Aga Khan University and The World Health Organization. Mar 6-7, 2017, Islamabad
- 2015 AKU Way Forward, Leadership course by AKU, October 28-29, 2015 at AKU, Karachi.
- 2011 Training for Chairpersons. AOSpine – (September 23-24), Zurich, Switzerland.

- 2011 Leaders in Healthcare, Arab Health Congress, Cleveland Clinic Foundation Center. January 27, Dubai, UAE
- 2003 Neuroscience Centers of Excellence for Hospitals and Health Systems: Developing, Updating and Expanding. Active Communications International, 55 West Monroe Street, Chicago, IL, USA.
- 2002-03 Leadership Development Workshops by The Michigan Institute for Management Studies, 4744 Orchard Ridge, Troy, MI, USA
- Leading strategy: Inspiring commitment and ensuring performance.
  - Influence and action: Core of leadership
  - The use of Power and influence: Managing without authority.
  - Taking charge: Self-management strategies in the 21<sup>st</sup> century
  - Dealing with difficult people: Bringing out the best in others, even at their worst
- 2002 Leadership Workshop: Business aspects of Health System Management: Physician's Role in Health System Leadership, by MDContent, 936 North Main Street, Ann Arbor, MI, USA.
- 2001 Business Management Course/Neurosurgical Practice Management, American Association of Neurological Surgeons, Chicago, IL, USA
- 2001 Leadership Renewal Course by Senn-Delaney Leadership Consulting Group, 3780 Kilroy airport Way, Long Beach, CA, USA and 2 Conduit Street, London W1S 2XB, UK



## RESEARCH EXPERIENCE:

- Jan 2004 – present **Aga Khan University.** Clinical research on neurosurgical topics with focus on central nervous system tuberculosis, low grade and high grade glioma, head injury, spine and other.
- Research Grants**
- 2017 **Co-Principal Investigator:** Diffusion MRI guided study of regional variation in glioblastoma multiforme pathology and gene expression. University Research Commission, AKU. PKR 1,1992,355
- Principal Investigator:** Analysis of NPC1 expression by engrafted neural stem cells and clinical outcome in a Niemann-Pick type C disease model. University Research Commission, AKU
- Co-Principal Investigator:** Proton MR Spectroscopy: a screening tool to differentiate between neoplastic and non-neoplastic brain lesions with ring like enhancement. URC, AKU
- Co-Investigator/Mentor:** Antitumor Effect of Some Herbal Compounds on Human Glioma Cells: an In Vitro Study. Seed money (Dr. Ghulam Rehmani Lakho), AKU
- Collaborator/ Senior Key Faculty.** International Cerebrovascular Translational clinical research program. NINDS and Fogarty Grant (PI. Dr Ayesha Kamal)
- Co-Principal Investigator.** Association between levels of DNA methyltransferases (DNMTs) and methyl binding proteins (MBDs) to human gliomas and glioma-derived cell phenotypes (Approved from HEC but not utilized).
- Jul, 1998 - 2003 **Hermelin Brain Tumor Center** (Midwest Neuro-Oncology Center) at Henry Ford Hospital, Detroit, USA. Brain tumor biology with emphasis on glioma extracellular matrix and immunotherapy for brain tumors. Role of adhesion molecules in immunotherapy.

Brain tumor repository at Henry Ford Hospital.  
Participated in establishing the brain tumor bank with samples from primary brain and secondary brain tumors. The samples were saved as tissues as well live cells. Some cell lines were further established.

**Principal investigator (surgical), clinical trial:**  
Interleukin-13 - Pseudomonas exotoxin fusion protein (IL13-PE38QQR cytotoxin) immunotherapy for recurrent high grade glioma.

**Co-investigator, clinical trial:** Phase II study utilizing the GliaSite RTS (Radiation Therapy System) for the treatment of a resected solitary brain metastasis. NIH funded study

Jan, 1995 - Jun, 1997 **Post-doctoral research at Midwest Neuro-Oncology Center** at Henry Ford Hospital, Detroit, MI. Brain tumor biology involving stereotactic intra-operative biopsies from patients with glioblastoma multiforme, and studying their invasive properties and expression of extracellular matrix molecules using cell biology techniques.

**Post-doctoral research in the CNS Injury Lab** at Henry Ford Hospital, Detroit, MI, USA. The effect of neuroprotective agents and trophic factors on neurological recovery and neuronal survival in spinal cord injury animal models.

**Principal investigator**, Henry Ford Hospital Research Grant 1997 for “Therapeutic Role of Neurotrophins in Spinal Cord Injury”. \$5,000

Jan, 1994 - Dec, 1994 **Post-doctoral research, Midwest Neuro-Oncology Center** at Henry Ford Hospital, Detroit MI, USA. Brain tumor biology, employing cell biology techniques on extracellular matrix molecules and their role in tumor invasion in established human glioma cell lines and glioma tissue obtained from patients treated in the Dept of Neurosurgery.

Jan, 1988 - Jun, 1991 **Pre-doctoral research** with Dr. William L. Klein, **Northwestern University Institute for Neuroscience**, Evanston, IL, USA. Cell biology techniques, Primary Neuronal and Neuroblastoma cultures, protein purification and detection by immunological methods, Immunocytochemistry, Video Enhanced Computerized Differential Interference Contrast microscopy, Microprocessor based digital image analysis systems: SPEX IM-II and Quantex DS-50, Confocal Microscopy, Whole Mount Transmission & Scanning Electron Microscopy, and Northern Blot analysis. (See thesis title).

Wrote NIH grant on the topic of “cell biology of Alzheimer’s disease” for Prof. Klein. The proposal received a high rating and was eventually funded by the time of conclusion of my graduate work at Northwestern University.

Sep, 1987 - Dec, 1987 **Pre-doctoral research** with Dr. Aryeh Routtenberg, **Cresap Laboratories**, Northwestern University, Evanston, IL, USA.  
Role of Protein Kinase C in memory.

## **CURRICULAR TEACHING AND EDUCATIONAL ACTIVITIES**

### **UNDERGRADUATE TEACHING:**

#### **Aga Khan University:**

- Introduced “Flipped Class Room” in Neuroscience module, 2017.
- Review and Revision of Neuroscience module curriculum for MBBS students.
- Neuroscience Large Class Format lectures (Neuroscience Module) 2005-2017: Included various topics on basic neuroscience such as characteristics of nerve impulses and synaptic transmission, neurotransmitters and neuropeptides; topics on neuroanatomy including all the parts of the central nervous system.
- Molecular biology of Neurodegenerative disorders – Molecular Biology – Theory and Practice, Summer course 2007.
- Neuroscience Module – PBL case reviews, LCF lectures and module planning 2004-2017
- Examiner:
  - Internal examiner for Anatomy 2005-2007
  - Review and formulate MCQ for first professional exam 2004
- Neurosurgery rotation has been one of the few most sought after for the elective and selective periods every year. Students choosing Neurosurgery as selective to rotate under my supervision: 74 (2005-2014).
- Elective rotation of students from external Pakistan institutions:4;  
Elective rotation of students from USA and Canada: 5

#### **Henry Ford Hospital:**

- Neurosurgery review lectures to medical students from Case Western University:
  - Subarachnoid hemorrhage
  - Managing cervical spine trauma



- Managing head trauma
- Review of brain tumors
- Intracerebral hemorrhage

**Northwestern University:**

- Teaching assistant and Facilitator for the following trimester courses:
  - Cell and Molecular Neurobiology
  - Comparative Anatomy of vertebrate and invertebrates
  - Nerve and Muscle Neurophysiology laboratory
- Tutor for African American students on following subjects:
  - General Chemistry
  - Biology
  - Physics

**POSTGRADUATE MEDICAL TEACHING:**

**Aga Khan University:**

- Annual Mega Retreat to Enhance the Reliability and Validity of Assessment at FHS-AKU, Karachi – 2015-2017
- Examiner in Neurosurgery Review Course from Nov 11 – 13, 2016 at AKU, Karachi.
- 10<sup>th</sup> AKU Annual Mega Retreat for Exam questions on March 19, 2016
- Faculty of Neurosurgery Review Course, AKU. Nov 21-23, 2014, and 2012 and 2010.
- Prepared Handbook for Neurosurgery residents. A practical manual deformed rules and guidelines.
- Designed and coordinated: Basic Neuroscience Course for Neurosurgery, Neurology and Psychiatry residents. The course consisted of topics of review of all the Basic Neuroscience and Applied Neuroscience topics following the format of “Fundamentals of Neuroscience” by Kandel and Schwartz.
- Modified and coordinated: Neurosurgery Review Course for Neurosurgery residents. The course included common

neurosurgical diagnosis, management, and surgical techniques aspect required for neurosurgery residency training. The topics followed selected topics from “Handbook of Neurosurgery” by Greenberg.

- Modified and coordinated: Neurosurgery Faculty Lecture Series. The course consisted of neurosurgical and other clinical neuroscience topics. The lectures were delivered by neurosurgery attendings (full time and non-full time faculty at AKU) as well as faculty from Neurology, Anesthesia, Radiology, Pediatrics, and Pathology.
- Delivered lectures to PGME trainees (residents and/or fellows) in other departments (Neurology, ENT, Anesthesiology):
  - Neurologic evaluation of neck pain
  - Radiculopathy
  - Cervical spine trauma
  - Surgical management of intracerebral hemorrhage
  - Lumbar stenosis: diagnosis and management
  - Acoustic Neuroma: A clinical update.
  - Low grade glioma

### **Henry Ford Hospital:**

- Member of Resident Education Committee.
- Delivered lectures neurosurgery residents on:
  - Biomechanics of spine
  - Fluid management of Neurosurgical ICU patients
  - Approaches to thoracic spine
  - Subarachnoid hemorrhage
  - Primary neoplasms of nervous system
  - Management of radiculopathy
- Delivered lectures to Clinical neuroscientists on:
  - Synaptic transmission in brain
  - Organization of brainstem
  - Reticular activating system
  - Basal ganglia

### **College of Physician and Surgeons of Pakistan**

- Approved supervisor for Neurosurgery 2004 – Present
- Examiner for FCPS exam in Neurosurgery 2007 – 2015

- Inspector for approval of Neurosurgery residency program at Ayub Medical College, Abbottabad. June 10, 2009
- Member, Committee to develop Fellowship in Spine (Orthopedics and Neurosurgery)

### **University of Science (Universiti Sains), Malaysia**

- Appointment as External Examiner (year 2015-2016) in the School of Medical Sciences for Master of Surgery (Neurosurgery) Professional I and II Evaluation Examination.
- Examiner for Theory, MCQ OSCE/Viva and Clinical Examination Phase 1 and 2 for Master of Neurosurgery. May 15-19
  - Department of Neurosurgery, Hospital Sultanah Aminah, Johor Bharu, Malaysia
  - Department of Neuroscience, Hospital Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia
- Examiner for Theory, MCQ OSCE/Viva and Clinical Examination Phase 2 for Master of Neurosurgery. Nov 19-20
  - Department of Neuroscience, Hospital Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia

### **University of Health Science, Lahore**

- Thesis evaluation, MS Neurosurgery candidates
  - Dr Sarfaraz Khan – Clinical features MRI finding, culture. Sensitivity of brain abscess.
  - Dr Salman Yunas – Outcome of burrhole evacuation of chronic subdural hematoma based on GCS.
  - Dr. Imran Altaf – Angiogram negative spontaneous subarachnoid hemorrhage the value of repeat angiography.

## **GRADUATE TEACHING:**

### **Aga Khan University:**

- PhD Core Curriculum courses:
  - Cellular and Molecular Biology - I:
    - Extracellular matrix and integrins
    - Cell adhesion molecules
    - Cytoskeletal organization and cytoskeletal molecules
    - Nerve cells and synaptic transmission
    - Tutorial topics
- Examiner,
  - PhD course CMB I
  - Defense and synopsis of Graduate students
- Member, FHS-PhD Program Committee

## **PARAMEDICAL STAFF TEACHING:**

### **Aga Khan University:**

Nursing staff lectures:

Management of Sub Hematoma Hemorrhage  
Hydrocephalus and CSF shunt  
Management of ventriculostomy in ICU

OR technicians workshops:

Neuronavigation system  
High speed pneumatic drill  
Neuro-endoscopy

#### ▪ **St Joseph's Mercy of Macomb Hospital:**

Nursing staff lectures and workshops (ICU nurses, and OR staff):

Craniotomy – OR nurses perspective  
ICP - physiology and pathology  
ICP - ventriculostomy and Camino bolt for monitoring  
Management of SIADH in neurosurgery

### **Henry Ford Hospital:**

Neurosurgery nursing staff:

Stabilization of cervical spine after trauma  
Management of ventriculostomy  
ICP monitoring

### **ACADEMIC SUPERVISOR**

- PhD Supervisor Dow University of Health Sciences since 2011
- Higher Education Commission (*being renewed*), Pakistan
- College of Physicians and Surgeons of Pakistan
- PhD supervisor, Aga Khan University

### **FCPS in Neurosurgery**

- Dr. Atta Bhatti, FCPS 2007 (CPSP; Resident in Neurosurgery. Thesis title: Ultrasonic guidance for resection of brain space occupying lesion)
- Dr. Shahzad Shamim, FCPS 2009 (CPSP; Resident in Neurosurgery. Thesis title: Intraoperative perineural midazolam for relief of post-operative pain)
- Dr. Kishore Kumar, (CPSP; Resident in Neurosurgery. Thesis title: Outcome of decompressive craniotomy; transferred in 2008 to Civil Hospital, Karachi)
- Dr. Zubair Tahir, FCPS 2010 (CPSP; Resident in Neurosurgery. Thesis title: Infection in long versus short tunnel ventriculostomy)
- Dr. Manzar Hussain, FCPS 2010 (CPSP; Resident in Neurosurgery. Thesis title: Role of CT scan in predicting traumatic contusion blossoming)
- Dr. Rajesh Kumar, FCPS 2011 (CPSP; Resident in Neurosurgery. Thesis title: Comparison of interlaminar decompression and decompressive laminectomy in lumbar spinal stenosis.)
- Dr. Mohammad Yaseen Rauf, FCPS 2013 (CPSP; Resident in Neurosurgery. Thesis title: Comparative efficacy of gabapentin vs. pregabalin in the management of lumbosacral radiculopathy)
- Dr. Mohsin Qadeer, FCPS 2013 (CPSP; Resident in Neurosurgery. Thesis title: Gabapentin vs. pregabalin for post-operative pain relief in lumbar microdiscectomy: A randomized controlled trial)

- Dr. Mehboob Alam, FCPS 2014 (CPSP; Resident in Neurosurgery. Thesis title: Does a post-operative sub-galeal vacuum drain affect wound related outcomes following supra-tentorial craniotomy).
- Dr. Muhammad Riyaz, FCPS 2014 (CPSP; Resident in Neurosurgery. Thesis title: Third ventriculostomy – an analysis of outcome).
- Dr. Ayesha Khan, (CPSP; Resident in Neurosurgery – transferred to Punjab. Thesis Title: Role of local anesthetic infiltration in reducing rise in blood pressure during placement of cranial pins for craniotomy).
- Dr. Saad Akhter, FCPS 2016 (CPSP; Resident in Neurosurgery – To Evaluate the Diagnostic Accuracy of Frozen Section in Diagnosing Malignant Brain Tumors taking Histopathology as Gold Standard).
- Dr. Muhammad Faheem, FCPS 2016 (CPSP; Resident in Neurosurgery Frequency of complications of decompressive craniectomy in patients with traumatic brain injury).
- Dr. Badar Ujjan, FCPS 2017 (CPSP; Resident in Neurosurgery – Role of Intravenous Steroids during Lumbar Disc Surgery in Reduction of Postoperative Surgical Site Pain).
- Dr. Waqas Muhammad (CPSP; Resident in Neurosurgery – Frequency of coagulopathy in children with traumatic brain injury. Currently preparing).
- Dr. Amjad Ali Qureshi (CPSP; Resident in Neurosurgery – Rate of External ventricular drain (EVD) infection in pediatric population. Currently preparing).
- Dr. Naveed Akhuzada (CPSP; Resident in Neurosurgery – Effectiveness of coagulation profile as a marker for blood loss in elective craniotomy. currently preparing).

### **PhD from AKU**

- Dr. Ghulam Lakho (Supervisor, PhD)  
Title: Tumoricidal effect of herbal compounds on glioma cells  
Supervisor changed in 2010.
- Toufeeq Ahmed (Co-supervisor, PhD awarded in 2009)  
Title: Studies on some pharmacological properties of curcuminoids useful in Alzheimer's disease).

## **LEADERSHIP ACTIVITIES**

### **Aga Khan University**

#### Head of Department of Surgery:

- As Chair, Department of Surgery, developed/ organized:
  - Office of Academia and Research in Surgery
  - Group for Appraisal and Promotion in Surgery
  - Office of Education and Training in Surgery
  - Leadership course for Surgery faculty – Trainer Scott Schweyer
  - Neuroscience Robotic Exoscope and Brain Awake Craniotomy
  - Successful passing of JCI survey
  - Initiated PGME Fellowships:
    - Neurooncology fellowship
    - Head and Neck fellowship
  - Service line implementation and agreements
  - Initiated Annual AKU Surgical Conference
    - 1<sup>st</sup> Conference in Nov 2015
    - 2<sup>nd</sup> Conference in Oct 2016
    - 3<sup>rd</sup> Conference in Feb 2018 (Proposed date)
  - Online implementation of faculty portfolio
  - Designing and Implementation of Faculty Appraisal Scoring Tool (FAST)
  - Implementation of CPT codes in OR
  - Appointed following visiting faculty members in Surgery
    - Professor Alf Giese, Germany
    - Professor Amir Jafarey, Pakistan
    - Dr Riaz Agha, UK
    - Dr Adnan Siddiqui, USA

#### Head of Neurosurgery:

- Faculty Dialogue with Chancellor AKU on Dec 19, 2013
- Reorganized neurosurgery service with emphasis on service delivery and equity among the full-time and non-full-time faculty members. This resulted in overall improvement in quality of care of neurosurgical patients and overall outcome.
- Recruited Dr. Gohar Javed as full-time faculty and Dr. Shahzad Shamim as instructor and initiated recruiting Dr. Aneela Darbar into the faculty. Reinstitution of faculty position of Dr. Rasheed Jooma.
- Timely promotion of the faculty in the section of Neurosurgery.
- Enhanced the Neurosurgery case load in clinical service to almost double in the first three years.

- Re-accreditation of the Neurosurgery Program by CPSP. By 2003 the Neurosurgery residency program was put on probation by CPSP for several reasons. Regularizing the residency with adequate number of Neurosurgery teaching faculty placed the program in regular mode.
- Conducted internal review of neurosurgery residency program with the AKU PGME office.
- Initiated new surgical programs State of the art service in Neurosurgery:
  - Neuro-endoscopy
  - Minimally invasive spine surgery
  - Epilepsy surgery
  - Minimally invasive (neuro-navigation guided) craniotomy
- Initiated research retreat in Neurosurgery:
  - First Neurosurgery research retreat held in 2008.
  - The 2<sup>nd</sup> Neurosurgery research retreat held in 2010 resulted in publication of proceedings that included
- With the JCIA initiative in 2006 (Certificate of Appreciation) and re-credentialing in 2009, worked on the quality of neurosurgical service to facilitate the acquisition of the accreditation.

### **Henry Ford Hospital**

- Vice-chairman, Dept. of Neurosurgery, Henry Ford Hospital:  
Responsible for managing the extensions of Neurosurgery department to other hospitals in metro Detroit area. These hospitals included St Joseph's Mercy of Macomb Hospital, St Mary's Hospital, Henry Ford Wyandotte Hospital, William Beaumont Hospital and Oakwood Hospital. The department consisted of 12 neurosurgeons working indifferent hospitals with their offices and office staff based in those hospitals. This position also included negotiating new contracts with the above mentioned hospitals and other hospitals included in the Detroit area, such as Bon Secours Hospital and Oakwood Hospital.
- Chief, Neurosurgery Associates of Macomb, (A subsidiary of Henry Ford Hospital):  
Setting up the practice in a private setting with several neurosurgeons to bring out HFH neurosurgeons into the Macomb county of Michigan. This



was the first effort of Henry Ford Hospital to set up any off-site practice of a clinical service.

- Director, Neurosurgery Outreach Program, Henry Ford Hospital:  
In an effort to capture a larger market share of neurosurgery patients, this program was started from HFH. As a Director of the program responsibilities included supervision of all the activities that were established to market this in the Detroit area.
- Physician Champion, Revenue cycle, Henry Ford Hospital:  
To optimize the revenue generation and cycle of billing in compliance with Medicare this responsibility entailed teaching and monitoring the details of documentation with respect to the requirements and to optimize the billing codes as they applied to neurosurgery. Preparation for this role required attending several conferences in North America 1999 through 2002 on billing, coding and documentation details.

#### **St. Joseph's Mercy of Macomb Hospital**

- Co-chair, Center for Spinal Disease Management, St Joseph's Mercy of Macomb Hospital:  
After involving the orthopedic and Physical Medicine and Rehabilitation services of this Hospital, I was able to design and launch this program. The template used was that of a similar center at HFH.
- Developed St. Joseph-West Hospital Spasticity Clinic in collaboration with Neurosurgery, Physical Medicine and Rehabilitation.
- Developed and set up the neurosurgical ICU service. This required establishing protocols for various neurosurgical procedures and clinical care such as bedside ventriculostomy.
- In collaboration with the Neurology service set up PA protocol for stroke patients.

**SOCIETY MEMBERSHIPS (past and current)**

- American College of Surgeons, USA
- Congress of Neurological Surgeons, Vista membership, USA
- Society of Spine Surgeons of Pakistan
- AOSpine International – Associate Member
- AOSpine Middle East - Member
- American Medical Association
- American Association of Neurological Surgeons
- Congress of Neurological Surgeons, USA
- Michigan State Medical Society, USA
- Wayne County Medical Society, MI, USA
- Sigma Xi - The Scientific Research Society, USA (*Life Member*)
- Association of Pakistani Physicians of North America
- Pakistan Society of Neurosurgeons
- World Federation of Neurology-Research Group on the Dementias
- American Association for the Advancement of Science
- Society of Neuroscience - USA
- International Brain Research Organization/World Federation of Neuroscientists

**COMMITTEES AND ADMINISTRATIVE RESPONSIBILITIES****Aga Khan University:**

<b>Committee</b>	<b>From</b>	<b>To</b>
• Chair, Surgery Advisory Committee	2015	
• Member, Quality Council Meeting	2015	
• Member, Medical Staff Credential Committee	2015	
• Member, Joint Staff Committee	2015	
• Surgical Care Improvement Program	2010	
• Ad Hoc Committee for review of Masters in Clinical Research	2009	
• Executive Committee, office of Surgical research, Dept. of Surgery	2009	2011
• Ad Hoc Committee for research of Chair of BBS	2009	2010
• Chair, Focus group to establish “Office of Surgical Research”	2008	-
• PhD Committee	2004	2011
• Chair, Focus group for postgraduate medical-PhD track	2005	-
• Chair, Budget Committee, Dept of Surgery	2005	2009
• Board of Graduate studies, member at large	2005	2009
• University Research Commission, alternate member	2005	2009
• Ad Hoc Committee for search for Head of Cardiology	2004	-
• Ad Hoc Committee for search for Head of Neurology	2004	-
• Tumor Bank Committee	2005	2009
• Surgery Advisory Committee	2004	2011
• Neurosurgery Residency Committee	2004	Present
• Postgraduate Medical Education Committee	2004	2009
• Health Sciences Center Committee	2004	2005
• HSCC task force –New Tertiary Care Services	2004	-
• CME committee	2005	-
• Committee for integrated research for postgraduate medical trainees	2004	-
• Neuroscience Committee	2004	Present

- |                                     |      |         |
|-------------------------------------|------|---------|
| • Neuroscience PBL module Committee | 2004 | Present |
| • Epilepsy group                    | 2005 | Present |

**Henry Ford Hospital:**

- Director, Neurosurgery Outreach Program
- Spinal Disease Management Committee
- Resident Education Committee, Dept of Neurosurgery
- Lectures for Neuroscience Grand Rounds, Neurosurgical Techniques & Basic Neuroscience
- Revenue Cycle Committee – Physician Champion
- Evaluation and Management coding, Dept of Neurosurgery
- Honorary Committee, Shoot for Cure (philanthropic event) 2002

**St Joseph's Mercy of Macomb Hospital:**

- Director of Clinical Research, Graduate Medical Education
- Co-Chair, Center for Spinal Disease Management
- Committee for Strategic Planning for St Joseph's Mercy of Macomb Hospital
- Course Instructor, Neurosurgical Intensive Care for ICU Nurses.
- Committee for Development of Clinical Pathway for Stroke
- tPA (Plasminogen Activator) Protocol for Stroke Committee
- Medical Care Evaluation and Quality Control, Dept of Surgery
- Critical Care Committee
- Ad Hoc Committee for search for Chairman of Pathology
- Treasurer, Dept of Surgery

**Northwestern University:**

- Alzheimer's Committee - Northwestern University-McGaw Medical Center.
- Neuroscience Scientific Retreat Committee

**AOSpine (Middle East Chapter):**

- Neurosurgery Education Officer – 2010-2012

**NON-GOVERNMENTAL ORGANIZATION ACTIVITY**

Member Board of Advisors, Association of Pakistani Professionals  
(A USA based focus group of Pakistanis working in collaboration  
with the Government of Pakistan to build up the image of Pakistan)

**PUBLIC AWARENESS AND MEDIA ADVOCACY**

- Lecture for Patients Behbud Society for AKUH, Yorba Linda, California, USA, April 26, 2017.
- Lecture for Patients Behbud Society for AKUH, Los Angeles, California, USA. April 23, 2017.
- “Cutting edge technology in Neurosurgery” Young Professionals Organization - Gold Pakistan Chapter at AKU, Karachi. Nov 9, 2016
- Panelist: "Teen Science, Not Rocket Science" AKU Karachi, Nov 3, 2016
- Invited Plenary Lecture: “Finality of Brain Death” on “Organ Donation” a public awareness seminar at SIUT (Sind Institute of Urology and Transplantation) Karachi on April 16, 2016
- Lecture for Patients Behbud Society for AKUH, Mar 12, 2016

- Left and right handedness in brain, Geo TV, 2011-2015
- Keynote Speaker: Rett Syndrome Awareness Session. Organized by Ko-Ordination Group (A Social Welfare Project of Kalia Group). National Museum, Karachi, Pakistan. October 31, 2013
- Brain tumors, Health TV, October 2012
- Head injury, Health TV, February 2011
- Surgery and pain management for spine problems, Dawn News TV, September 2010
- Brain tumors and mobile phone, Aaj TV, June 2010
- Neurobiology of addiction, Geomentary, Geo TV, 2009
- Brain problems and mobile phones, Geo TV, May 2009
- Spine problems, Indus TV, 2008
- Signs and symptoms of neurosurgical problems, questions and answers, Dawn News.
- Brain tumors, Hum TV, 2008
- “So you want to be a neurosurgeon”, Dawn newspaper, 2007
- Neurological problems, Thursday Night Special, TV One, March 2006
- Role of Nurses in society, Nursing day special, Geo TV, May 2006
- Repatriation back to Pakistan, Geomentary, Geo TV, January 2006
- Interview feature: Dr. Ather Enam, The man who wears two hats. Star weekend, March 2006
- Common spine problems and back pain, ARY TV, June 2005
- Head injury, ARY TV, February 2005
- Public Health Awareness Program. Dubai. February 16, 2005. “Common Spine Problems”.
- Brain tumors, FM 100, 2005
- Detroit TV – live session on spine problems by Henry Ford Neurosurgery, November 2002

- People in the News, The Detroit News, March 2002
- The storm surrounding stem cell research, The Macomb Daily, July 2001
- Healthier Image Public Lecture Series: “Brain Tumors”, Clinton Twp, MI, USA. November 29, 2000.
- Healthier Image Public Lecture Series, Sterling Heights, MI, USA. November 24, 1998. “Low Back Pain”.
- Treating a pain in the back, Macomb Daily Newspaper, November 1998

### **WORKSHOPS/ SYMPOSIA ORGANIZED**

- 3<sup>rd</sup> Annual AKU Surgical Conference (included 23 workshops). Theme: Surgical Oncology. AKU, Karachi. Feb 2 – 3, 2018.
- Mini Symposium: Deep Brain Stimulation organized by Dept. of Surgery at AKU, Karachi. Nov 9, 2017
- Annual PASBAN Neuroscience Conference: Theme: Building Bridges through Neuroscience. Annual Neuroscience Conference. AKU Karachi. Oct 28, 2017
- Department of Surgery Retreat based on Academia and Services. AKU, Karachi Aug 27, 2017.
- 2<sup>nd</sup> Annual AKU Surgical Conference (included 17 workshops). Theme: Surgical Innovations for the Developing World. AKU, Karachi. Oct 21-23, 2016.
- Annual PASBAN Neuroscience Conference: Theme: Showcasing Neuroscience Research in Pakistan. Annual Neuroscience Conference. AKU Karachi. Oct 8, 2016
- Molecular Biology of Brain Tumors from Bench to Bedside. AKU, Karachi. Aug 16, 2016
- Neuro Robotic Exoscopy. AKU, Karachi. In conjunction with Aurora Neurosciences, Milwaukee, WI, USA. April 12, 2016
- Annual PASBAN Neuroscience Conference. Theme: Building a Better Brain. In collaboration with Advance Educational Institute and Research Centre and

Pakistan society of basic and applied neuroscience. AKU Karachi. Dec 29, 2015.

- 1st Annual AKU Surgical Conference (included 4 workshops). Theme: “The Impact of Surgical Complications”. AKU, Karachi. Nov 13 – 15, 2015.
- AOSpine Principles Symposium – Trauma and Infection of Spine. AOSpine Middle East. Lahore, Pakistan. February 17-18, 2012.
- Neuroendoscopy workshop, Aga Khan University. August 6, 2010
- Minimally Invasive (Endoscopic) Spine Surgery Workshop, February 10, 2010
- 2<sup>nd</sup> Neurosurgery Research Retreat, Aga Khan University, February 5, 2010
- Chairman, Scientific Committee, 21<sup>st</sup> National Conference of Neurosurgery, Karachi, Pakistan, December, 2008.
- National scientific advisor. 1<sup>st</sup> National Headache and Back pain Conference, October 10-11, 2008.
- 1<sup>st</sup> Neurosurgery Research Retreat, Aga Khan University, August 2, 2008.
- Scientific Committee, World Federation of Neurological Surgery course, Lahore, Pakistan, 2007
- Co-chair, 1<sup>st</sup> IBRO (International Brain Research Organization) Associate School of Neuroscience, Panjwani Center for Molecular Biology of Diseases, University of Karachi, Pakistan March 26-30, 2007
- Organized “Vision for Neuroscience - A symposium on prospects for neuroscience in Pakistan” at University of Karachi, March 25, 2007
- Microsurgery Workshop, Aga Khan University, February 18-22, 2007
- Minisymposium on Pediatric Neurosurgery, Aga Khan Univ, January 24, 2007
- Minisymposium on Epilepsy Surgery, Aga Khan University, January 17, 2007
- Spine Forum, member organizing committee, AKU, September 16-17, 2006
- Workshop on Neuronavigation, Aga Khan University, June 3, 2006
- Microsurgery Workshop, Aga Khan University, January 16-20, 2006



### **REVIEWER FOR SCIENTIFIC JOURNALS AND RESEARCH COUNCILS**

- International Journal of Surgery
- Journal of Neurosurgery
- Neurosurgery
- Neuro-Oncology
- Surgical Neurology International
- Medical Research Council of Canada
- The Surgeon
- Pakistan Armed Forces Medical Journal
- Journal of Neuroimaging
- Pakistan Science Foundation
- Journal of Pakistan Medical Association
- Journal of College of Physicians and Surgeons of Pakistan

### **OTHER REVIEW AND EXPERT OPINIONS FOR SCIENTIFIC JOURNALS**

- Visiting Professor Dipartimento di Scienze Neurologiche Cattedra di Neurochirurgia, Univerista'Degli Studi di Napoli Federico II, Naples Italy February 21-25, 2011.
- Consultant, Codman (a Johnson & Johnson company), for marketing potential in under-developed countries. DePuy Institute, Raynham, Massachusetts, USA. June 2010.
- Medical Research Council of Canada.
- Board of Advisors, Federal University of Health Sciences, DHA, Islamabad

## **EDITOR**

- Member Editorial Board Executive Committee – International Journal of Surgery Protocols.
- Member, Advisory Board. The Science Bridge ([www.thesciencebridge.org](http://www.thesciencebridge.org)).
- Associate Editor-in-Chief, Surgical Neurology International: Unique Case Observations ISSN 2152-7806; Medknow Publications. PubMed Indexed
- International Consulting Editor, Surgical Neurology International, ISSN 2152-7806; Medknow Publications. PubMed Indexed
- Editor: Pakistan Journal of Neurological Sciences ISSN 1990-813X (Online); 1990-6269 (Print) 2007-12
- Member Advisory Board: Pakistan Journal of Neurological Sciences ISSN 1990-813X (Online); 1990-6269 (Print) 2012-present
- Member of Editorial Board Chinese Journal of Clinicians, International (ISSN 1674-0785)

## **LEADERSHIP ROLE IN ACADEMIC ORGANIZATION**

- President, Pakistan Society of Basic and Applied Neuroscience (PASBAN)
- Vice President, Society of Spine Surgeons of Pakistan
- Member, Executive Committee, Tumor Section, American Association of Neurological Surgeons and Congress of Neurological Surgeons

## **SOCIAL MEDIA**

- LinkedIn: <https://www.linkedin.com/in/syed-ather-enam-b8396414a/>
- ResearchGate: [https://www.researchgate.net/profile/Syed\\_Ather\\_Enam](https://www.researchgate.net/profile/Syed_Ather_Enam)

- Google Scholar:  
<https://scholar.google.com.pk/citations?user=AQUkW0EAAAAJ&hl=en&authuser=1&oi=ao>

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### **SCIENTIFIC JOURNALS (PubMed Indexed):**

1. Waqas M, Enam SA, Hashmi FA, Mubarak F, Arain F. Video Microscope Robotic Arm-Assisted, Neuronavigation-guided Glioma Resection and Regional Sampling. *Cureus*. 2017 Oct 2;9(10):e1738. doi: 10.7759/cureus.1738.
2. Waqas M, Siddiqui A, Mubarak F, Enam SA. Diffusion Tensor Imaging for Ruptured Cerebral Arteriovenous Malformation. *Cureus*. 2017 Sep 28;9(9):e1721. doi: 10.7759/cureus.1721.
3. Shafiq F, Salim F, **Enam A**, Parkash J, Faheem M. Anaesthetic Management of Supratentorial Tumor Craniotomy Using Awake-Throughout Approach. *J Coll Physicians Surg Pak*. 2017 Dec;27(12):775-777. doi: 2771.
4. Lissek T, Adams M, Adelman J, Ahissar E, Akaaboune M, Akil H, al'Absi M, Arain F, Arango-Lasprilla JC, Atasoy D, Avila J, Badawi A, Bading H, Baig AM, Baleriola J, Belmonte C, Bertocchi I, Betz H, Blakemore C, Blanke O, Boehm-Sturm P, Bonhoeffer T, Bonifazi P, Brose N, Campolongo P, Celikel T, Chang CC, Chang TY, Citri A, Cline HT, Cortes JM, Cullen K, Dean K, Delgado-Garcia JM, Desroches M, Disterhoft JF, Dowling JE, Draguhn A, El-Khamisy SF, El Manira A, Enam SA, Encinas JM, Erramuzpe A, Esteban JA, Fariñas I, Fischer E, Fukunaga I, Gabilondo I, Ganten D, Gidon A, Gomez-Esteban JC, Greengard P, Grinevich V, Gruart A, Guillemin R, Hariri AR, Hassan B, Häusser M, Hayashi Y, Hussain NK, Jabbar AA, Jaber M, Jahn R, Janahi EM, Kabbaj M, Kettenmann H, Kindt M, Knafo S, Köhr G, Komai S, Krugers H, Kuhn B, Ghazal NL, Larkum ME, London M, Lutz B, Matute C, Martinez-Millan L, Maroun M, McGaugh J, Moustafa AA, Nasim A, Nave KA, Neher E, Nikolich K, Outeiro T, Palmer LM, Penagarikano O, Perez-Otano I, Pfaff DW, Poucet B, Rahman AU, Ramos-Cabrer P, Rashidy-Pour A, Roberts RJ, Rodrigues S, Sanes JR, Schaefer AT, Segal M, Segev I, Shafqat S, Siddiqui NA, Soreq H, Soriano-García E, Spanagel R, Sprengel R, Stuart G, Südhof TC, Tønnesen J, Treviño M, Uthman

- BM, Venter JC, Verkhatsky A, Weiss C, Wiesel TN, Yaksi E, Yizhar O, Young LJ, Young P, Zawia NH, Zugaza JL, Hasan MT. Building Bridges through Science. *Neuron*. 2017 Nov 15;96(4):730-735. doi: 10.1016/j.neuron.2017.09.028.
5. Waqas M, Iftikhar M, Siddiqui UT, Enam SA. Ependymal enhancement on magnetic resonance imaging for the identification of high-grade gliomas. *Surg Neurol Int*. 2017 Sep 26;8:227. doi: 10.4103/sni.sni\_77\_17. eCollection 2017.
  6. Waqas M, Khan I, Khawaja R, Quddusi A, Enam SA. Self-resolving prepontine cyst. *Surg Neurol Int*. 2017 Sep 6;8:215. doi: 10.4103/sni.sni\_160\_17. eCollection 2017
  7. Nagral S, Hussain M, Nayeem SA, Dias R, **Enam SA**, Nundy S. Unmet need for surgery in South Asia. *BMJ*. 2017 Apr 11;357:j1423. doi: 10.1136/bmj.j1423.
  8. Qadeer M, Waqas M, Rashid MJ, **Enam SA**, Sharif S, Murtaza G. Preventive Gabapentin versus Pregabalin to Decrease Postoperative Pain after Lumbar Microdiscectomy: A Randomized Controlled Trial. *Asian Spine J*. 2017 Feb;11 (1):93-98.
  9. Khan SA, Nathani KR, Ujjan BU, Barakzai MD, **Enam SA**, Shafiq F. Awake craniotomy for brain tumours in Pakistan: An initial case series from a developing country. *JPMA Supplement Vol:66, No:10 Oct 2016*
  10. Rai HH, Khan MF, **Enam SA**, Hashmi I. Co-existing spinal intradural ependymal cyst and sacral Tarlov cyst in adult-onset tethered cord syndrome with syringomyelia: Case report and literature review. *Surg Neurol Int*. 2016 Sep 22;7(Suppl 25):S708-S710.
  11. Tahir MZ, Sobani ZA, Murtaza M, **Enam SA**. Long-tunneled versus short-tunneled external ventricular drainage: Prospective experience from a developing country. *Asian J Neurosurg*. 2016 Apr-Jun; 11(2): 114–117
  12. Bakhshi SK, Waqas M, Shakaib B, **Enam SA**. Management and outcomes of intramedullary spinal cord tumors: A single center experience from a developing country. *Surg Neurol Int*. 2016; 7 (Suppl 23): S617–S622.
  13. M Khan MB, Riaz M, **Enam SA**. Endoscopic third ventriculostomy for obstructive hydrocephalus: Outcome analysis of 120 consecutively treated

patients from a developing country. *Int J Surg.* 2016 Feb;26:69-72. doi: 10.1016/j.ijisu.2015.12.001. Epub 2015 Dec 14.

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#### **SCIENTIFIC ABSTRACTS:**

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4. Lakho GR, Qazi R, **Enam A**, Qadri SAQ, Gilani AH. Growth inhibition of human glioma cell line (A172) by curcumin. 1st South Asian Conference of Physiology Societies and 11th biennial conference of Pakistan Physiological Society. 10-12 November, 2008 *Pakistan Journal of Physiology* Volume-4 Number 1 (supplement) 2008. S-13p
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11. Tahir MZ, **Enam SA**. Selective amygdalohippocampectomy: a minimal invasive approach for epilepsy surgery. 21<sup>st</sup> National Neurosurgery Conference of Pakistan Proceedings. 2008.
12. Shamim MS, Ali A, **Enam SA**, Shah AA. Intracranial intradural fungal infections: Review of surgically managed patients at a single institute. 21<sup>st</sup> National Neurosurgery Conference of Pakistan Proceedings. 2008.
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14. Hassan R, Ali RP, Irfan FB, Saleem S, **Enam SA**. Trigeminal neuralgia: A retrospective review of medical and surgical management. 21<sup>st</sup> National Neurosurgery Conference of Pakistan Proceedings. 2008.
15. Godil SS, Tabani H, Khan MA, **Enam SA**. Clinical review of pediatric pilocytic astrocytoma treated at a tertiary care hospital in Pakistan. 4th AKU Health Sciences Research Assembly, p 118, December 2008. Also presented in the 21<sup>st</sup> National Conference of Neurosurgery, December 13-14, 2008.
16. Tabani H, Godil SS, Khan MA, **Enam SA**. Pediatric brain tumors: Experience at a tertiary care hospital in Pakistan. 4th AKU Health

Sciences Research Assembly, p 120, December 2008. Also presented in the 21<sup>st</sup> National Conference of Neurosurgery, December 13-14, 2008.

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37. Bhatti AA, **Enam SA**. Comparison between Conventional and Ultrasonography assisted Brain Lesion Resection. 3rd AKU Health Sciences Research Assembly, p 105, April 2007.
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1. Qidwai U, Shamim MS, **Enam SA**. Fuzzy prediction for failed back surgery syndrome. Applied Artificial Intelligence 2010; vol 24 issue 10
2. Siddiqui AA, Bashir SH, Shah AA, **Enam SA**, Complications in craniocerebral aspergillosis of sino-nasal origin in immunocompetent patients. Pan-Arab Journal of Neurosurgery Pan Arab Journal of Neurosurgery, v14 n2 (2010 10 01): 99-103+134
3. Shamim MS, **Enam SA**, Pervez R, Ali SF, Wasay M. Review of surgical management of non-suppurative brain lesions (Part II). Pak J Neurol Sci 2010; 5(1):21-24
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6. Haque A, **Enam SA**, Implementation of brain trauma foundation guidelines in children with acute traumatic brain injury in tertiary-care hospital in Pakistan. Ind J Neurotrauma. 2009; 6(2):111-114.
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14. F Khursheed F, Bari ME, **Enam SA**, Follicular thyroid carcinoma presenting as solitary skull metastasis. Pak J Neurol Sci. 2006; 1(1):14-17.
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16. Ozair MZ, Rehman SE, **Enam SA**, Fuzzy control of the baseline activity within the basal ganglia of rat brain. Multi Topic Conference, 2003. INMIC 2003. 7th International (IEEE) pp 351- 353

### **BOOK CHAPTERS**

1. **Enam SA**, Rock JP. Management Guidelines and Decision making, in Sawaya E (ed) Intracranial Metastases: Current Management Strategies. Malden, MA: Blackwell Publishers 2004; pp 461-476.

2. Mikkelsen T, **Enam SA**, Rosenblum MR. Invasion in malignant glioma, in Winn HR (ed) Youman's Neurological Surgery Philadelphia: W B Saunders Co. 2003; pp 687-713.
3. **Enam SA**. Antibodies to adhesion molecules for immunotherapy of gliomas. In Liau LM, Cloughsey TF, Becker DP (eds): Brain Tumor Immunotherapy. New Jersey: The Humana Press Inc. 2001; pp 249-270.
4. **Enam SA**, Rock JP, Rosenblum MR. Malignant glioma, in Bernstein M, Berger M (eds): Essential Neuro-Oncology. New York: Thieme New York. 2000; pp 309-318.
5. **Enam SA**, Rock JP. Management of uncommon adult low-grade glial tumors, in Rock JP, Rosenblum ML, Shaw E, Cairncross G (eds): The Practical Management of Low-Grade Primary Brain Tumors. Philadelphia: Lippincott-Raven. 1999; pp 111-131.
6. **Enam SA**, Eisenberg AD, Norman D, Rosenblum ML. Patterns of spread and recurrence of glioma: studies by neuroimaging, in Mikkelsen T, Bjerkvig R, Laerum OD, Rosenblum ML (eds): Brain Tumor Invasion: Clinical, Biological and Therapeutic Considerations. New York: Wiley-Liss. 1998; pp 133-159.
7. Mahmood A, Hysell S, **Enam SA**. Civilian gunshot wounds to the head, in 11th International Congress of Neurological Surgery. Bologna, Italy: Monduzzi Editore, International Proceedings Division. 1997; pp 1307-1310.

#### **COMMENTARIES/EDITORIALS IN SCIENTIFIC JOURNALS:**

1. Naeem K, **Enam SA**. Reading Between the Joints-Using Spinal Magnetic Resonance Imaging for Evaluation of Instability. World Neurosurg. 2017 Nov;107:1033-1034. doi: 10.1016/j.wneu.2017.09.043. Epub 2017 Sep 14
2. **Enam SA**. Editorial: Neurosurgery training in Pakistan. Pak J Neurol Sci. 2007; 2(4).

3. Kazim SF, **Enam SA**. Re: various irrigation fluids affect postoperative brain edema and cellular damage during experimental neurosurgery in rats (Doi et al. Surg Neurol. 2006;66:565-72). Surg Neurol. 2007 Jul;68(1):118.
4. **Enam SA**. Vignette: History of epilepsy surgery. Pak J Neurol Sci. 2007; 2(2): 129.
5. Majeed K, **Enam SA**. 1st IBRO Associate School of Neuroscience and symposium on "Vision for Neuroscience". Pak J Neurol Sci. 2007; 2(2): 132-133.
6. **Enam SA**. Vignette: Neurosurgeons and electrocautery. Pak J Neurol Sci. 2007; 2(1): 59.
7. Shamim S, **Enam SA**. Literature highlights: Neurosurgery. Pak J Neurol Sci. 2007; 2(1): 50-53.
8. **Enam SA**. Literature highlights: Neurosurgery. Pak J Neurol Sci. 2006; 1(3): 113-118.
9. **Enam SA**. Book Review: Skinner's Box by Lauren Slater. Pak J Neurol Sci. 2006; 1(1): 63-64.
10. **Enam SA**. Comments on Kleinman et al: Epithelioid ependymoma: a new variant of ependymoma: report of three cases. Neurosurgery. 2003; 53:747-8.
11. **Enam SA**. Comments on Enegd et al: Overexpression of hyaluronan synthase-2 reduces the tumorigenic potential of glioma cells lacking hyaluronidase. Neurosurgery. 2002; 50:1318.
12. **Enam SA**. Comments on Bello et al:  $\alpha v \beta 3$  and  $\alpha v \beta 5$  integrin expression in glioma periphery. Neurosurgery. 2001; 49:390.
13. **Enam SA**. Comments on Kraemer et al: Association of total dose intensity of chemotherapy in primary central nervous system lymphoma (human non-AIDS) and survival. Neurosurgery. 2001; 48:1040-1041.
14. **Enam SA**, Rosenblum ML, Comments on Mariani et al: Intratumoral arteriovenous shunting in malignant gliomas. Neurosurgery. 2001; 48:357.

15. **Enam SA.** Comments on Parney et al: Human glioma immunobiology in Vitro: Implications for immunogene therapy. Neurosurgery. 2000; 46:1178.
16. **Enam SA, Rosenblum ML,** Comments on Badie et al: In vitro modulation of microglia motility by glioma cells is mediated by hepatocyte growth factor/scatter factor. Neurosurgery. 1999; 44:1083.

### **PH.D. THESIS:**

**Enam SA.** Cell Biology of Alzheimer's disease. Northwestern University Institute of Neuroscience, Evanston, IL. Thesis advisor: Prof. Dr. William L. Klein, Chairman, Interdepartmental Graduate Program in Neuroscience. Northwestern University. Publishers: University Microfilms International, Ann Arbor, MI, 1992.

### **INVITED LECTURES & SCIENTIFIC PRESENTATIONS (NATIONAL AND INTERNATIONAL):**

1. Invited Lecture: "Innovation in treatment of brain tumors" 8<sup>th</sup> Annual Scientific Symposium, Postgraduate Medical Inst., Lahore. Feb 27, 2018.
2. Invited lecture: "Patient selection (Neurosurgeon's perspective)" in CME session Anaesthesia for Awake Craniotomy, Dept. of Anesthesiology AKU Karachi on Dec 7, 2017.
3. Session Chair: 3<sup>rd</sup> Annual Neuroscience Meeting 2017 "Building Bridges through Neuroscience". AKU, Karachi. Oct 28, 2017.
4. Panelist: "Complication avoidance in tumor surgery – M&M Panel discussion" 6<sup>th</sup> Annual Meeting in St. Louis, USA. Oct 2-6, 2017
5. Session Chair & Invited lecture: "Treating patients who cannot afford quality care" in Association of Pakistani Physicians & Surgeons, Royal Society of Medicine London, UK. Sep 27 – 28, 2017.
6. Lecture: "Nuances in the management of low grade Glioma" Neuro-Oncology Symposium, Dept. of Surgery, AKU, Karachi. Sep 16, 2017

7. Facilitator workshop: “Surgical techniques in cervical spine surgery” Live and Cadaver hands on workshop at Allama Iqbal Medical College Lahore. Sep 9-10, 2017.
8. Invited lecture: “How to interpret cervical MRI? in Surgical techniques in cervical spine surgery” Live and Cadaver hands on workshop at Allama Iqbal Medical College Lahore. Sep 9-10, 2017.
9. Invited lecture: “Techniques of C1-C2 fixation in Surgical techniques in cervical spine surgery” Live and Cadaver hands on workshop at Allama Iqbal Medical College Lahore. Sep 9-10, 2017.
10. Keynote lecture: “Practice and Publish” 6<sup>th</sup> Annual Health Sciences Students’ Research Conference by Student Research Forum (SRF) of AKU SONAM. Aug 26, 2017
11. Invited lectures: “MicroRNAs: Their Role in Glioma Pathogenesis and Designing Personalized Therapy”. XVI Congress of Neurosurgery, Istanbul Turkey. Aug 20 – 25, 2017
12. Invited lectures: “Cytomegalovirus and Gene Expression in Glioblastoma Multiforme”. XVI Congress of Neurosurgery, Istanbul Turkey. Aug 20 – 25, 2017
13. Invited lectures: “Current Recommendations in Treatment of Low Grade Glioma”. XVI Congress of Neurosurgery, Istanbul Turkey. Aug 20 – 25, 2017
14. Moderator for two sessions: XVI Congress of Neurosurgery, Istanbul Turkey. Aug 20 – 25, 2017
15. Panelist & Program Director: CME Symposium | Management of Acromegaly organized by Department of Continuing Professional Education, Aga Khan University, Karachi on June 15, 2017
16. Invited lecture: “Molecular Cell Biology of Glioma Invasion”. BioCruces, Hospital de Cruces, Achucarro (Basque Center for Neuroscience); Ikerbasque (Basque Foundation for Science); University of Basque, Bilbao, Spain. June 9, 2017
17. Chair: Session in Research Day of Department of Medicine at Aga Khan University, Karachi on May 26, 2017
18. Keynote lecture: “Innovations in Treatment of Brain Tumors”. 1<sup>st</sup> International Conference “Innovation in Healthcare”, Shalamar Medical & Dental College Lahore. Feb 3 – 5, 2017

19. Chair: Session on Neurointervention. 2<sup>nd</sup> Annual Scientific Meeting of Interventional Radiology Society of Pakistan. “IR current practices and future trends”. Karachi. Jan 14-15, 2017
20. Invited lecture: “Role of Neurosurgeons in Radiosurgery”. 4<sup>th</sup> International Pakistan Gamma Knife & X-Knife Stereotactic Radiosurgery Symposium. Karachi, Pakistan. Nov 27, 2016
21. Invited lecture: “Stem Cell Research in Neuroscience: From Bench to Bedside”. Pakistan Medical Association, 32<sup>nd</sup> PMA Biennial Medical Conference, Karachi. Nov 11-13, 2016
22. Keynote lecture: Neuro-Robotic Exoscope to Young Presidents Organization Gold Pakistan at CIME, AKU. Nov 9, 2016
23. Panelist: Translational Neuroscience (Plenary Session). 19<sup>th</sup> National Health Sciences Research Symposium, Mind and Brain, Neuroscience today and tomorrow. AKU, Karachi. Nov 4 – 6, 2016.
24. Invited lecture: “New Horizons in Epilepsy Surgery”. 19<sup>th</sup> National Health Sciences Research Symposium, Mind and Brain, Neuroscience today and tomorrow. AKU, Karachi. Nov 4 – 6, 2016.
25. Panelist: Basic Neuroscience (Parallel Session). 19<sup>th</sup> National Health Sciences Research Symposium, Mind and Brain, Neuroscience today and tomorrow. AKU, Karachi. Nov 4 – 6, 2016.
26. Chair: Plenary Scientific session. Paradigm shifts in Postgraduate Medical Education. AKU Annual PGME conference. Oct 15, 2016
27. Lecture: “Brain Tumor Stem Cells in Treatment of Glioma” Annual Neuroscience Meeting 2016 “Showcasing Neuroscience Research in Pakistan” at AKU, Karachi on Oct 8, 2016.
28. Invited lecture: “Brain Tumor and Stem cells” CME Symposium, “Molecular Biology of Brain Tumors from Bench to Bedside”, AKU, Karachi. August 16, 2016
29. Lecture: “Brain Tumors”, CME Seminar Neurology, Neurosurgery and Psychiatry for Primary Care Physicians at AKU, Karachi. June 4, 2016.
30. Keynote Lecture: Neuro-robotic Exoscopy at AKU University Assembly, June 3, 2016
31. Invited keynote lecture: “Head Injury in Sports”, 16<sup>th</sup> SMAP Scientific congress. Sports Medicine Association of Pakistan, Karachi. May 28, 2016



32. Faculty: Pakistan Orthopedic Association Spine Forum, 5<sup>th</sup> International live spine surgery workshop on spinal injuries. Surgeon General's International Conference 2016, CMH, Rawalpindi. April 26-27, 2016
33. Invited plenary session lecture: "New trends in Management of Brain Tumor". Indus Neuroscience Conference. Meeting of Minds: From Degeneration to Degeneration of Brain. Liaquat University of Medical Health Sciences, Hyderabad. April 2-3, 2016
34. Invited lecture: "Occipito-cervical fusion". Cervical spine course". Society of Spine Surgeons of Pakistan Karachi from Feb 6-7, 2016
35. Invited lecture: "Current treatment of brain tumors" Pak-China Medcong. An Invitation for Joint Pak-China Medical Corridor. Organized by PMA, Karachi from Jan 8-10, 2016
36. Lecture: "Revitalization the Pakistan Society of Basic Applied Neuroscience" in CME Building a Better Brain in collaboration with Advance Educational Institute and Research Centre and Pakistan Society of Basic and Applied Neuroscience. AKU Karachi. Dec 29, 2015.
37. Panelist: "Future of Neuroscience in Pakistan" in "Building a Better Brain" in collaboration with Advance Educational Institute and Research Centre and Pakistan Society of Basic and Applied Neuroscience. AKU Karachi. Dec 29, 2015.
38. Panelist: "40<sup>th</sup> International Symposium of Sindh Institute of Urology & Transplantation", Karachi. Dec 8 – 12, 2015
39. Invited speaker "Coming back from US and Establishing a practice in Pakistan: Challenges and Successes" Walter E. Dandy Neurosurgical Society. 1st Dandy Quadrennial meeting, Dubai. November 20 – 22, 2015
40. Invited lecture CNS. 14<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore. November 15, 2015.
41. Faculty: Workshop on "Conducting a Scientific Morbidity and Mortality Meeting". 1st Annual AKU Surgical Conference (included 4 workshops). "The Impact of Surgical Complications". AKU, Karachi. Nov 13 – 15, 2015.
42. Invited lecture "How to read MRI of Lumbar spine". Degenerative Disorders of Spine. Spine Forum POA & Department of Orthopedic and Spine Surgery KGMC/HMC, Peshawar, Pakistan. September 12 – 13, 2015.

43. Faculty: “Degenerative Disorders of Spine”. Spine Forum POA & Department of Orthopedic and Spine Surgery KGMC/HMC, Peshawar, Pakistan. September 12 – 13, 2015.
44. Chairman, 1<sup>st</sup> National Radiosurgery Symposium. Karachi, Pakistan. August 22, 2015
45. Invited lecture and Faculty. Walter E. Dandy Neurosurgical Society Forum, Shanghai Jiao Tong University, Shanghai. May 1 – 3, 2015
46. Invited keynote lecture “Head Injury in Sports” 15<sup>th</sup> SMAP Scientific congress. Sports Medicine Association of Pakistan in Karachi on March 8, 2015
47. Session chair: “Recent advances in Ophthalmology” Karophth. March 6-8, 2015
48. Invited lecture: “Cervical Spine degeneration disease”. Basic spine course in Pakistan Orthopedic Association Spine forum. Orthopedic Spine Inst. Doctors Hospital, Lahore. Feb 27-28, 2015
49. Invited lecture CNS. 13<sup>th</sup> Shaukat Khanum Cancer Symposium. November 21-23, 2014 in Lahore.
50. Invited lecture: “Teleconferencing in the selection of epilepsy surgery candidates in Asia”. 10th Asian & Oceanian Epilepsy Congress, Singapore. Aug 7-10, 2014.
51. State of the Art Lecture: “Molecular and Cell Biology of Glioma Invasion”. 9<sup>th</sup> LUMHS International Symposium, Jamshoro, Pakistan. April 25-27, 2014.
52. Invited lecture: “Management of Subarachnoid Hemorrhage and Cerebral Aneurysms”. 9<sup>th</sup> LUMHS International Symposium, Jamshoro, Pakistan. 25-27 April, 2014.
53. Invited lecture: “Neurosurgical Management of High Grade Gliomas”. 12<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore, Pakistan. November 29-December 1, 2013.
54. Chair of Scientific Session on Neuro-oncology, 12<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore, Pakistan. November 29-December 1, 2013.
55. Invited lecture: “Molecular and Cell Biology of Brain Tumors”. Jinnah Medical College Lecture Series. 19 September, 2013
56. Invited lecture: “Molecular and Cell Biology of Brain Tumors”. 3<sup>rd</sup> International Symposium: Healthcare from Bench to Bedside and Beyond. Bahria University Medical and Dental College. April 26-27, 2013.

57. Invited lecture: “Current Concepts in Management of Gliomas”. 20<sup>th</sup> Annual Neurology Conference, Bhurban, Pakistan. 19-21 April, 2013
58. Chair of Scientific Session on Neuro-oncology, 11<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore, Pakistan. November 9-11, 2012.
59. Invited lecture: “Current Concepts in Surgical Treatment of Glioblastoma Multiforme”. 11<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore, Pakistan. November 9-11, 2012.
60. Invited lecture: “Management of Low Grade Glioma – Surgical Aspects”. Neuro-oncology Symposium, Karachi Institute of Radiotherapy and Nuclear Medicine, Karachi, Pakistan. October 20, 2012.
61. Chairperson: AOSpine Principles Symposium – Trauma and Infection of Spine. AOSpine Middle East. Lahore, Pakistan. February 17-18, 2012.
62. Invited lecture: “Prognostic Factors and Management of Spinal Cord Injury”. AOSpine Principles Symposium – Trauma and Infection of Spine. AOSpine Middle East. Lahore, Pakistan. February 17-18, 2012.
63. Invited lecture: “Upper Cervical and Occipitocervical Instrumentation”. 8<sup>th</sup> Middle East Orthopedics Conference, In Arabhealth Conference, Dubai, 23-25 January, 2012.
64. Invited lecture; “Current Concepts in the Treatment of Low Grade Glioma”. 10<sup>th</sup> Shaukat Khanum Cancer Symposium, Lahore, Pakistan. November 18-20, 2011.
65. Invited lecture: “Developing Clinical Services for Hospitals of the Future”. Leaders in Healthcare; Hospital Build Asia. Singapore. May 11-13, 2011.
66. Chair session adhoc. Leaders in Healthcare; Hospital Build Asia. Singapore. May 11-13, 2011.
67. Invited lecture; “Practical Management of Low Grade Glioma”. Oman Neurosurgical Society, 5<sup>th</sup> Annual Conference, Muscat, Oman. March 16, 2011.
68. Invited lecture: “Biomechanics of Spine”. Oman Neurosurgical Society, 5<sup>th</sup> Annual Conference, Muscat, Oman. March 17, 2011.
69. Chair of Scientific Session. Oman Neurosurgical Society, 5<sup>th</sup> Annual Conference, Muscat, Oman. March 17, 2011.
70. Invited lecture: “Intradural Extramedullary Spinal Lesions”. AOSpine Advanced Course – Spinal Column Tumors, Esfahan, Iran. January 20, 2011.

71. Invited lecture: “Imaging and Management in Neurovascular Disease – Surgical Perspective”. 26<sup>th</sup> Annual Conference of Radiological Society of Pakistan. Karachi, Pakistan. October, 29-31. 2010.
72. Invited lecture: “Recent Advances in Cervical Spine Trauma”. MedCare Hospital, Jumeirah, Dubai, UAE. October 24, 2010.
73. Invited lecture: “Management of low-grade Glioma”. MedCare Hospital, Jumeirah, Dubai, UAE. October 22, 2010.
74. Neurosurgery in Emerging Asia: Facts, Perceptions, and Potentials. Codman Advisory Board Meeting, DePuy Institute, Raynham, MA, USA. June 11, 2010.
75. Endoscopic Spine Surgery: Techniques, Pearls and Pitfalls. National Conference. The Aga Khan University, Karachi, February 2, 2010.
76. Live Demonstration: Endoscopic interlaminar decompression of Lumbar stenosis. The Aga Khan University, Karachi, February 2, 2010.
77. Invited lecture: “Temporal Approaches”. OV Jooma Memorial course, Karachi, Pakistan. October 3, 2009.
78. Panelist: “Neurosurgical training, opportunities and challenges”. Sheraton Hotel, Karachi. October 3, 2009.
79. Invited lecture: “Brain tumors: molecular mechanism of glioma invasion and therapeutics.” Ziauddin University, Karachi. March 21, 2009.
80. Invited lecture on Clinical Spine at Cervical – 08. 22<sup>nd</sup> International Orthopedic Conference and ASAMI International. Karachi. November 5 – 8, 2008.
81. Faculty, Workshop on “Fundamentals of Tissue Engineering”, 12<sup>th</sup> National Health Sciences Research Symposium – Injury in the Developing World: From Prevention to Care. The Aga Khan University, Karachi, Pakistan. August 28-30, 2008.
82. Co-chair: Clinical care of trauma patient. In: Injury in the developing world from prevention to care. Aga Khan University. August 26-28, 2008.
83. Invited lecture: “Surgery for epilepsy”. Epilepsy Day. Aga Khan University. July 9, 2008.
84. Faculty; “Surgical approaches to spine and spinal instrumentation – hands on workshop”. Dow University of Health Sciences. June 20-22, 2008.

85. Invited lecture: "Cervical spine biomechanics and trauma". Dow University of Health Sciences. June 20, 2008.
86. Chair: Free Paper Presentations. Postgraduate Medical Education Conference: Understanding Programme Assessment and Evaluation. Aga Khan University. May 30-31, 2008.
87. Neurosurgery Review course lecture: "Infratentorial tumors" Mayo Hospital, King Edward Medical College, Lahore. January 25, 2008
88. Invited lecture: "Molecular mechanism of traumatic brain injury" 3<sup>rd</sup> National Conference on Neurotrauma. Quetta, Pakistan, May 12, 2007.
89. Invited lecture: "Developmental Neurobiology". 1<sup>st</sup> IBRO Associate School of Neuroscience. Pakistan. March 26-30, 2007.
90. Invited lecture: "Cerebellar and cerebral cortex". 1<sup>st</sup> IBRO Associate School of Neuroscience. Pakistan. March 26-30, 2007.
91. Moderator of session "Review of Neurosciences" March 26, 2007; 1<sup>st</sup> IBRO Associate School of Neuroscience. Karachi, Pakistan.
92. Moderator of session "Neurobiology of Diseases" March 27, 2007; 1<sup>st</sup> IBRO Associate School of Neuroscience, Karachi, Pakistan.
93. Moderator of session "Cellular and Molecular Neuroscience" March 28, 2007; 1<sup>st</sup> IBRO Associate School of Neuroscience Karachi, Pakistan.
94. Moderator of session "Computational Neuroscience" March 29, 2007; 1<sup>st</sup> IBRO Associate School of Neuroscience, Karachi, Pakistan.
95. Moderator of session "Neurogenomics and Neural Behavior"; 1<sup>st</sup> IBRO Associate School of Neuroscience, University of Karachi, Karachi, Pakistan. March 30, 2007
96. Invited lecture: "Neuroscience: Challenges and opportunities in Pakistan". Symposium: "Vision for Neuroscience" International Center of Chemical and Biological Sciences, University of Karachi, Pakistan. March 25, 2007
97. Invited lecture: "Surgical techniques of pedicle screw fixation in lumbar spine: pearls and pitfalls" 5th International Conference on Screw Fixation of Spine<sup>7</sup> February 21<sup>st</sup>, 2007, Liaquat University Medical Hospital, Jamshoro, Pakistan.
98. Panelist; "Mini-symposium on epilepsy surgery", January 17, 2007. Aga Khan University, Karachi, Pakistan

99. Scientific Committee, WFNS Surgical Course February 2007, Lahore Pakistan
100. Panelist; “An update on pediatric neurosurgery”, January 24, 2007. Aga Khan University, Karachi, Pakistan
101. Invited lecture: “Role of Gabapentin in management of spinal pain” Lectures to general physicians of Karachi, January 9, 2007
102. Panelist; “Who Owns the Patient in Polytrauma” December 10, 2006. 2<sup>nd</sup> South Asian Critical Care Congress Dec 4-10, 2006 Karachi, Pakistan.
103. Spine Forum: Pakistan Orthopedic Association. Invited Lecture: “Cervical Spine Trauma” September 16, 2006. Karachi, Pakistan.
104. Invited Lecture: “Common spine problems” Mini-symposium on pain management, September 14, 2006. Pakistan Steel Town Hospital, Karachi
105. 11<sup>th</sup> National Health Sciences Research Symposium and Workshops on “Understanding and Managing Pain”. Invited lecture: “Molecular Cell Biology of Pain”. Workshop on Pain. September 9, 2006, AKU, Karachi, Pakistan
106. 11<sup>th</sup> National Health Sciences Research Symposium and Workshops on “Understanding and Managing Pain”. Invited lecture: “Neurological Examination of Neck Pain”. Workshop on Pain. September 8, 2006, AKU, Karachi, Pakistan
107. National Neurosurgery Review course lecture: “Problems in Vascular Neurosurgery” Aga Khan University, Karachi, August, 2006
108. “Types of epilepsy surgery”. AKUH's 'Signs, Symptoms and Care' Programme July 14, 2006
109. Symposium on “Advances in the Management of Primary Intracerebral Hemorrhage”. Invited lecture: “Role of Surgery in Intracerebral Hemorrhage”. May 6, 2006. Karachi, Pakistan
110. Invited Lecture, Grand Rounds Shaukat Khanum Memorial Hospital. “Management of Low Grade Glioma”. April, 2006. Lahore, Pakistan.
111. 12<sup>th</sup> Annual Meeting of Pakistan Society of Neurology. Invited lecture: “Practical Management of Low Grade Glioma”. April 22, 2006, Islamabad, Pakistan.
112. Pakistan Stroke Society, Peshawar Chapter. Annual Meeting. Invited lecture: “Management of Intracranial Aneurysms: A Clinical Update”. Rehman Medical Institute, Peshawar. March 11, 2006

113. Neuroscience Grand Rounds. "Current Management of Intracranial Aneurysms"  
The Aga Khan University. February 24, 2006.
114. 18<sup>th</sup> National Neurosurgery Conference of Pakistan. November 17-19, 2005  
Moderator for Harvey Cushing session.
115. 18<sup>th</sup> National Neurosurgery Conference of Pakistan November 17-19, 2005  
"Polyaxial screws for lumbo-Iliac fixation after resection of sacral tumor".
116. Neurosurgery Review course lecture: "extra-axial tumors of central nervous  
system"
117. Pakistan Institute of Medical Sciences. Islamabad. August 4, 2005
118. Scientific Chairman, 3<sup>rd</sup> South Asian Neurosurgery Conference. Karachi,  
Pakistan. March 17-20, 2005.
119. Moderator, Controversies in Neurosurgery, 3<sup>rd</sup> South Asian Neurosurgery  
Conference. Karachi, Pakistan. March 20, 2005.
120. Karophth 2005 conference. Invited lecture: "Benign Intracranial Hypertension".  
February 20, 2005. Karachi, Pakistan.
121. Kuwaiti Hospital, Sharjah. CME lecture. February 16, 2005. "Practical  
Management of Low Grade Glioma".
122. General Authority for Health Services, CME Lecture. Abu Dhabi. February 15,  
2005. "Trigeminal Neuralgia".
123. Qassimi Hospital, Sharjah. CME lecture. February 14, 2005. "Practical  
Management of Low Grade Glioma".
124. Postgraduate Seminar: Update on Brain Tumors (Gliomas). Aga Khan  
University, Karachi. Feb 11, 2005. "Low Grade Gliomas, Surgical Options".
125. Seminar on Movement Disorders Update. Karachi, Pakistan. December 24,  
2004. "Role of Surgery in Movement Disorders".
126. First Pakistan Stroke Conference. Lahore, Pakistan. December 17-19, 2004.  
"Sub-arachnoid Hemorrhage and Cerebral Aneurysms".
127. Symposium on "Polytrauma by Road Traffic Accidents, Head Injury and Spinal  
Injury". Karachi, Pakistan. November 25, 2004. Guest of Honor.
128. 17<sup>th</sup> National Neurosurgery Conference Pakistan Society of Neurosurgeons,  
Karachi, Pakistan. November 26-28, 2004. Moderator for Scientific Session.

129. 17<sup>th</sup> National Neurosurgery Conference Pakistan Society of Neurosurgeons, Karachi, Pakistan. November 26-28, 2004. "Parasagittal Meningiomas: Strategy with superior sagittal sinus".
130. 17<sup>th</sup> National Neurosurgery Conference Pakistan Society of Neurosurgeons, Karachi, Pakistan. November 26-28, 2004. "Practical Management of Low Grade Glioma".
131. Regional Stroke Conference. Pakistan Stroke Society. Karachi Pakistan. June 2004. "Subarachnoid Hemorrhage".
132. Invited Research lecture: Cell culture techniques. Surgery Research Course, Dept of Surgery, Aga Khan University, March 2004.
133. Faculty, Surgery Research Course, Dept of Surgery, Aga Khan University, March 2004.
134. Invited Guest Lecture, Grand Rounds, Aga Khan University Medical College, Karachi, Pakistan Department of Surgery, March 8, 2003. "Trigeminal Neuralgia".
135. Henry Ford Hospital, Detroit. Neuroscience Grand Rounds, May 2, 2001. "Occult Filum Terminale Syndrome."
136. Primary Care Update. Held at University of Michigan Management Education Center, USA. September 15, 2000. "Cervical and Lumbar Radiculopathy".
137. 33<sup>rd</sup> Annual Convention of IMA, Rosemont, Illinois, USA. August 31-September 3, 2000. Moderator for Session on Neurology. : "Medicine in the New Millennium".
138. American Brain Tumor Association Symposium: Future of Neuro-Oncology, Sharing Hope, Dearborn, Michigan, USA. June 9-10, 2000. Invited speaker. "Immunotherapy for Brain Tumors".
139. Henry Ford Hospital, Detroit. Neuroscience Grand Rounds, April 5, 2000. "Lumbar Stenosis: A clinical Update."
140. Aga Khan University Medical College, Karachi, Pakistan Department of Surgery, March 15, 2000. "Immunotherapy for Glioma: Antibodies to Adhesion Molecules".
141. Sir Syed University of Engineering & Technology, Karachi. Invited Speaker, March 14, 2000. "Biomedical Engineering: Applications in Neurology and Neurosurgery".



142. The 32<sup>nd</sup> Annual Convention of Islamic Medical Association, Session IV: Advances in Neurosciences, Cairo, Egypt, June 25-29, 1999. Invited Speaker. "Brain Tumors: Clinical and Research Update".
143. Henry Ford Hospital, Detroit. Neuroscience Grand Rounds, October 29, 1997. "Role of Extracellular Matrix in Glioma Invasion."
144. IXth Annual Conference of Pakistan Society of Neurosurgeons, Karachi, Pakistan, December 26-27, 1996. "Clinical Pattern of spread of malignant glioma: Role of extracellular matrix".
145. Aga Khan University Medical College, Karachi. Department of Neurology, December 26, 1996. "Carotid Endarterectomy: Role in Pakistan."
146. N.E.D. University of Engineering & Technology, Karachi. Invited Speaker, Department of Electrical Engineering, December 24, 1996. "From Neuron to Brain: An Electrical and a Computational perspective."
147. Aga Khan University Medical College, Karachi. Department of Surgery, December 11, 1996. "Carotid Endarterectomy."
148. Civil Hospital, Karachi. Invited Speaker, Department of Neurology, December 10, 1996. "Electrophysiology of Neurons."
149. Sir Syed University of Engineering & Technology, Karachi. Invited Speaker, November 27, 1996. "From Neuron to Brain: An Electrical and a Computational perspective."
150. Second Annual Resident Research Forum, "Characterization of extracellular matrix and its role in tumor invasion in human glioma cultures". Henry Ford Hospital, Detroit, MI, USA. March 23, 1995.
151. Abbott Laboratories, Department of Neuropsychiatric Markers R & D, Abbott Park, Illinois. Invited Speaker, June 13, 1991. "Cell Biology of Alzheimer's Disease".
152. Dissertation Seminar, Department of Neurobiology and Physiology, Northwestern University, Evanston, Illinois, June 10, 1991. "Cell Biology of Alzheimer's Disease".
153. Northwestern University, Sigma Xi, 16th Annual Graduate Students Research Symposium, Evanston, Illinois, May 1, 1991. "About Amyloid Plaques and Neurofibrillary tangles of Alzheimer's Disease: Is it Degeneration or Regeneration?"

154. Midwest Society of Electron Microscopists, Inc., "Microfibrillar adhesion complexes of developing neurites: Linkage to the cytoskeleton." Wheaton College, Wheaton, Illinois, January 18, 1991.
155. The Second International Conference on Alzheimer's Disease and Related Disorders, "APP Belongs to a Family of Adhesive Microfibrils and it can Associate after Release with the ECM." Toronto, Canada, July 15-20, 1990.