

CURRICULUM VITAE

CURRICULUM VITAE FOR ACADEMIC PROMOTION The Johns Hopkins University School of Medicine

[Signature] _____
[Name] **Kayode Ayodele Williams, M.D., M.B.A., FFARCSI.**

[Date]

DEMOGRAPHIC INFORMATION

Current Appointments

2005-present: Assistant Professor, Department of Anesthesia and Critical Care Medicine, Johns Hopkins
2009-2011: Director, Blaustein Pain Treatment Center, Division of Pain Medicine, Johns Hopkins
2011-present: Assistant Professor, Carey School of Business, Johns Hopkins University

PERSONAL DATA

BUSINESS ADDRESS: Department of Anesthesiology and Critical Care Medicine
Division of Pain Medicine
Johns Hopkins School of Medicine
600 North Wolfe Street, Osler 292
Baltimore, MD 21287

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Education and Training

Oct 1979 – Oct 1984 Bachelor in Medicine and Surgery (M.B.B.S.)
College of Medicine University of Lagos
Lagos, Nigeria

Oct 1988– Dec 1989 Diploma in Anaesthesia (D.A.)
College of Medicine University of Lagos
Lagos, Nigeria

Aug 1990 –Apr 1995 Fellow of Faculty of Anaesthetist
Royal College of Surgeons in Ireland (FFARCSI)
United Kingdom

Aug 2002 –Apr 2004 Master of Business Administration (MBA)
Executive MBA Program
University of Michigan Business School
Ann Arbor, Michigan

Postdoctoral Training:

Nigeria

Dec1984 – Jan1986 Internship
Lagos State Health Management Board
Lagos, Nigeria

Oct1988 – Dec1989 Senior House Officer (Resident)
Department of Anesthesia
Lagos University Teaching Hospital
Lagos, Nigeria

United Kingdom

Apr 1990 – Aug 1990 Clinical Attachment
Department of Anesthesia
Dartford and Gravesham Health Authority
Dartford, Kent, UK.

Aug1990 –Jan 1992 Senior House Officer (Resident)
Department of Anesthesia
Dartford and Gravesham Health Authority
Dartford, Kent, UK

Feb1992 –May 1993 Senior House Officer (Resident)
Department of Anesthesia
Hope Hospital
Salford, UK

Jun1993 –Sep1995 Registrar (Senior Resident)
Northwest Regional Registrar Rotation
University of Manchester Teaching Hospital and Affiliates
Manchester, UK

Sep1995 – Aug1997 Clinical Assistant
Dartford and Gravesham Health Authority
Dartford, Kent, UK

United States

Oct 1997 – Sep1998 Rotating Internship
Department of Surgery/Internal Medicine
University of Michigan Health System
Ann Arbor, Michigan

Oct 1998 –Sep 2001 Department of Anesthesiology
Anesthesiology Resident
Advanced Clinical Track: Pain Management,
Pediatric Anesthesia and Cardiac Anesthesia
University of Michigan Health System
Ann Arbor, Michigan

Oct 2001 –Sep 2002 Department of Anesthesiology
Multidisciplinary Pain Center
Fellow Chronic Pain Medicine
University to Michigan Health System
Ann Arbor Michigan

Professional Experience

Mar 1986 – Feb1987 Medical Officer
Baptist Medical Center Ogbomosho
Ogbomosho, Nigeria

Mar 1987-- Oct 1987 Medical Officer
Fatimah Memorial Medical Center
Lagos, Nigeria

Nov 1987 Sep1988 Medical Officer
First Foundation Medical Center
Lagos, Nigeria

Sep1995 – Aug1997 Clinical Assistant
Joyce Green Hospital
Dartford and Gravesham Health Authority
Dartford, Kent, United Kingdom (Now Darenth Valley Hospital)

Oct 2002 – Aug 2005 Lecturer in Anesthesiology and Pain Medicine
Department of Anesthesiology
University of Michigan Health System
Ann Arbor, Michigan

Sept 2005- present Assistant Professor Anesthesiology and Pain Medicine
Department of Anesthesiology and Critical Care Medicine
Johns Hopkins School of Medicine
Baltimore, Maryland.

ADMINISTRATIVE APPOINTMENTS

Sept 2005 – June 2009 Director of the Off-Site Pain Program
*Primary responsibility is to establish a state of the art private practice pain program
for the diagnosis and treatment of outpatients.*

Sept 2005- Jan 2008 Director Green Spring Station Pain Center
Johns Hopkns at Green Spring Staion

Feb 2008 – June 2009 Director White Marsh Pain Center
Johns Hopkins at White Marsh

July 2009 – June 2011 Medical Director
Blaustein Pain Treatment Center
Johns Hopkins Medical Institution.

RESEARCH ACTIVITIES

Publications: Peer-reviewed Original Science manuscripts.

1. Lieberman, J., **Williams, K.A.**, Rosenberg, A., Optimum Head Rotation for Internal Jugular Vein Cannulation when Relying on External Landmarks. *Anesthesia and Analgesia* 2004; 99: 982-988.
2. Hurley, R.W., Cohen, S.P, **Williams, K.A.**, Rowlingson, A.J., Wu, C.L. The analgesic effects of perioperative gabapentin on postoperative pain: a meta-analysis. *Regional Anesthesia and Pain Medicine*. 2006. May-June; 31(3): 237-47.
3. Cohen, S. P., Sireci, A., Wu, C. L., Larkin, T. M., **Williams, K.A.**, Hurley, R. W., Pulsed radiofrequency of the dorsal root ganglia is superior to pharmacotherapy or pulsed radiofrequency of the intercostals nerves in the treatment of chronic post surgical thoracic pain. *Pain Physician* 2006; Jul: 9 (3):227-35.
4. Cohen, S.P, Zahid, B.H., Kraemer, J.J., Dragovich, A., **Williams, K. A.**, Stream, B.S., Sireci, B. S., Mcknight, G, Hurley, R. W. ,Factors Predicting Success and Failure for Cervical Facet Radiofrequency Denervation : A Multi-Center Analysis. *Regional Anesthesia and Pain Medicine*; Nov 2007;32:495-503.
5. Cohen S.P, Strassels S.A, Foster L, Marvel J, **Williams K.A.**, Crooks M, Gross A, Kurihara C, Nguyen C, Williams N. A Multi-Center, Randomized Controlled Study Comparing Fluoroscopically-Guided and Blind Injections for Trochanteric Bursitis. *BMJ* 2009 Apr14; 338: b1088.doi:10.1136/bmj.b1088.
6. Cohen SP, **Williams K.A.**, Kurihara C, Nguyen C, Shields C, Kim P, Griffith SR, Larkin TM, Williams N, Strassels S. Multicenter, randomized comparative cost-effectiveness study comparing 0, 1 and 2 diagnostic medial branch (facet joint nerve) block treatment paradigms before lumbar facet radiofrequency denervation. *Anesthesiology*.2010 aug;113(2):395-405.
7. **Williams K.A.**, Marlis Gonzalez-Fernandez, Sayeh Hamzehzadeh, Indy Wilkinson, Michael A. Erdek, Anthony Plunkett, Scott Griffith, Matthew Crooks, Thomas Larkin, and Steven P. Cohen. A Multi-center Analysis Evaluating Factors Associated with Spinal Cord Stimulation Outcome in Chronic Pain Patients. *Pain Med*. 2011 Aug;12(8):1142-53. doi: 10.1111/j.1526-4637.2011.01184.x. Epub 2011 Jul 12
8. Marie N. Hanna, MD, Ashlea D. Barrett, MPH, **Kayode A. Williams**, MD, Peter Pronovost, MD. Does Patient Perception of Pain Control Affect Patient Satisfaction Across Units in a Tertiary Teaching Hospital? (Accepted: *American Journal of Quality* 8/2011)

Work in progress:

9. **Kayode A. Williams, M.D., MBA**, Chester Chambers, Ph.D., Maqbool Dada, Ph.D., Douglas Hough, Ph.D., Ravi Aron, Ph.D., John A. Ulatowski, M.D., Ph.D., MBA. Using Process Analysis to Assess the Impact of Medical Education on the Delivery of Pain Services: A Natural Experiment. (Under Review : *Anesthesiology* 8/2011).

10. Neufeld N, DO, Gonzales-Fernandez M, M.D. Ph.D. Christo P, M.D. MBA, **Williams K., M.D. MBA**. An intervention of behavior modification to increase medication reconciliation compliance by residents in an outpatient clinic. (Submitted American Journal of Quality 9/2011).

EDUCATIONAL PUBLICATIONS

Case Reports

1. **Williams K.A.**, Korto K, Cohen S.P. Spinal Cord Stimulation: Neural Switch in Complex Regional Pain Syndrome Type I. Pain Medicine 2009; 10(4) 762-766.
2. **Williams K.A.**, Babade M, Cohen S.P. Spinal Cord Stimulator Placement for Degenerative Joint Disease of the Shoulder in a Patient with End Stage COPD: Anesth Analg. 2010 Jan;110(1):220-1.
3. McGreevy K, **Williams K.A.**, Christo P.J. Cephalad Lead Migration Following Spinal Cord Stimulator Implantation: Technical Report and Literature Review. Pain Physician (Accepted 12/2011).
4. McGreevy K, Ramasubbu C, **Williams K.A.**, Christo P.J. TECHNICAL ASPECTS OF INFERIOR HYPOGASTRIC PLEXUS BLOCK FOR CHRONIC PELVIC PAIN: CASE REPORT. Pain Physician (Submission pending 12/2011).

Healthcare Business and Finance related publications:

1. Olaniyan O.E.P, M.D., MBA, Brown C, RN, CPUM,CPHQ, **Williams, K.A. M.D.,MBA,FFARCSI**. Effectively Managing Your Medical Necessity and Notification Denials; Healthc Financ Manageme. 2009 Aug; 63 (8): 62-7.
2. Olaniyan O.E.P, M.D., MBA, Brown C, RN, CPUM,CPHQ, **Williams,M.D.,MBA,FFARCSI**. Utilization Review, Getting it Right. Physician Exec 2011 May-Jun;37(3):50-54.

Work in Progress:

3. Olaniyan O.E.P, M.D., MBA, Brown C, RN, CPUM,CPHQ, **Williams,M.D.,MBA,FFARCSI**. Effectively Managing Your Medical Necessity and Notification Denials Through effective Physician Education (submission pending Physician Executive 2012)

Editorials, Invited or Submitted Reviews:

1. **Williams, K.A.**, Research in Residency? How to Pull It Off. ASA Newsletter, Residents Review; April 2002, Volume 66; Number 4.
2. Sharma, A., **Williams, K. A.**, Raja, S.N., Advances in the treatment of complex regional pain syndrome: recent insights on a perplexing disease. Current Opinion in Anesthesiology 2006, 19; 566-572.
3. Olaniyan O.E.P, M.D., MBA, **Williams, K.A. M.D.,MBA,FFARCSI**. **Incremental Healthcare Reform Can Work**. Healthc Financ Manageme. Aug.2009. Web publication.www.hfma.org/HealthReformCommentary.htm.
4. **Williams K.A.**, Harden N. The Placebo-Effect: Reducing the “Signal to Noise Ratio” a case for analogous thinking form the Engineering model. Curr Pain Headache Rep. 2011 Feb; 15(1):35-8.
5. McGreevy K, **Williams K.A.** Contemporary insights into painful diabetic neuropathy and treatment with spinal cord stimulation. Curr Pain Headache Rep. 2011 Nov 10[Epub ahead of print].

6. **Williams K.A.**, McLeod J, Reinhardt G. How Process Re-engineering could improve the Economic impact of Spinal Cord Stimulation treatment from Conservative management to implantation. (**Submission pending** Pain Management Journal 12/2011).
7. Flagg, A. **Williams, K.A.** Spinal cord stimulation in the treatment of Cancer Pain: (**Submission pending**-Current Pain and Headache Reports 12/2011).
8. **Williams, K.A.**, Sudrella, A., Raja, S.N., Guan, Y. Spinal Cord Stimulation:Comprehensive Review (**Submission pending** Lancet Neurology 12/ 2011).

Book Chapters:

1. **Raj's Practical Management of Pain:** 4th Edition, New York: Elsevier-Mosby,2006. Chapter 21. Neuropathic Pain Syndromes(CRPS, PHN, PDN) *Christopher Wu, Robert Hurley*, **Kayode Williams.**
2. Handbook of Neurosurgery edited by D.Rigamonti: Chapter: Complex Regional Pain Syndrome. **Williams K.A.**, Belzberg A. (In press).
3. Neuropathic pain mechanisms and management edited by J McArthur. Chapter 19: Post surgical pain. **Williams K.A.**, Cohen SP, Raja SN. (In press)
4. Handbook of Neurosurgery edited by D.Rigamonti. Functional Neurosurgery:Surgery for Pain. **Williams K.A.**, Lenz F.A. (In press)
5. Essentials of Pain Medicine and Regional Anesthesia 3rd Edition edited by H Benzon: Chapter- Complex Regional Pain Syndrome. **Williams K.A.**, (In Press)

INVENTIONS/PATENTS

1. **Williams, K.A., M.D.** Huntington, J. M.D. Co-developed the Pediatric Induction Pacifier Device. Patent application filed: University of Michigan Technology Management Office (#1846) 03/2001. Patent issued 08/17/2004,U.S Patent Number 6776157.

Extramural Funding:

- Evaluating Potential Mechanisms and Determining the Efficacy of Spinal Cord Stimulation in Patients with Chronic Pain

Aim: Utilizing Quantitative Sensory Testing determine if patients with chronic low back pain with Radiculopathy demonstrate specific pattern of responses before and after treatment.

Funding Source: Medtronic- \$125,000

Role: Co-Investigator 2011- Present.

Intrmural Funding

1. Spinal Cord Stimulation in the Treatment of Low Back and Leg Pain associated with Marfans Syndrome:

Aim: The study is aimed at evaluating the efficacy of SCS in the treatment of the neuropathic back and leg pain associated with Marfan Syndrome. In addition Quantitative Sensory Testing was used to evaluate predictive features associated with successful treatment.

Funding mechanism Blaustein Grant: Role: PI 2011 – Present. Status: Pending

2. The use of MR Spectroscopy in evaluating the effects of Spinal Cord stimulation on the GABAergic system in Chronic Pain patients as a tool to enhance the understanding of the mechanisms of action of SCS:

Aim: The study is aimed at the novel use of MR spectroscopy in determining the effects of SCS on the GABAergic neurons and thus enhancing the understanding of the mechanism of action of SCS

Funding mechanism-ACCM seed grant. Role: PI 2011 – Present. Status: In preparation

RESEARCH PROGRAM BUILDING/LEADERSHIP

1. Neuromodulation:

EDUCATIONAL ACTIVITIES

Workshop and Symposia

1. Spinal injections hands-on cadaver work shop: 32nd Annual Scientific meeting Society of Interventional Radiologist, Seattle WA, March 2007. **Role: Instructor**
2. Psychological Screening and Disease Phenotyping: How well do these Help Predict Outcomes of Interventional Pain Procedures? American Academy of Pain Medicine 28th Annual Meeting February 23-26 2012. Palm Springs CA
Role: Moderator/Faculty
3. Spinal Cord Stimulator Workshop Hands-on Cadaver workshop: American Society of Anesthesiologist Annual Meeting October 14th 2012, Washington D.C. **Role: Faculty**

National Lectures:

1. The use of spinal cord stimulation in the treatment of peripheral vascular disease; Eleventh Annual Multidisciplinary Pain Medicine Update Johns Hopkins School of Medicine, Baltimore December 2005.
2. The use of spinal cord stimulation in the treatment of neuropathic pain; Eleventh Annual Multidisciplinary Pain Medicine Update Johns Hopkins School of Medicine, Baltimore December 2005
3. Interventional Spine Procedures. 32nd Annual Scientific Meeting Society of Interventional Radiologist Seattle WA March 2007.
4. Management of Pain in the Rheumatic Disease Patient, Arthritis Foundation, Maryland Chapter Annual Rheumatology Update for Primary Care Providers. Maryland, October 5th 2007.
5. Role and technique of performing blocks/epidurals in pain management, 33rd Annual Scientific Meeting Society of Interventional Radiologist, Washington D.C., March 2008.
6. Spinal Cord Stimulation for the treatment of Neuropathic Pain. National Medical Association. 109th Convention and Scientific Assembly. Washington D.C. July 2011

International Lectures.

1. The Business of Pain Medicine: 2nd International Pain Conference Abu Dhabi September 20th 2011.
2. Spinal Cord Stimulation for the treatment of Cancer Pain: 2nd International Pain Conference Abu Dhabi September 20th 2011.
3. Spinal Cord Stimulation for the treatment of Neuropathic Pain. 2nd International Pain Conference Abu Dhabi September 21st 2011.

Visiting Professorship:

1. University of Virginia School of Medicine : Spinal Cord Stimulators for the Treatment of Neuropathic Pain November 30th 2011
2. Walter Reed Army Medical Center: i).The Business of Pain Medicine-How to Organize your practice. ii) Spinal Cord Stimulators for the Treatment of Neuropathic Pain December 16th 2011.
3. Duke University School of Medicine: Factors Associated with Outcomes of Spinal Cord Stimulator Treatment in Chronic Pain Patients March 12th 2012
4. TUFTS School of Medicine: The Role of Business Process Re-engineering in Disease Management: Spinal Cord Stimulation 2012.

Johns Hopkins Carey Business School

1. Managing Medical Processes: Using Process Analysis to Assess the Impact of Medical Education on the Delivery of Pain Services: A Natural Experiment. October 31st 2011

Intramural Lectures:

1. Management of Greater Trochanter Bursitis, Department of Physical Medicine and Rehabilitation, Division of Physical Therapy Johns Hopkins Medical Institution, October 12th,2007.

Teaching Activities

1. 04/06/2006: Morning Resident Lectures :Complex Regional Pain Syndrome; Teaching faculty Blalock 14
2. 04/28/2006: Morning Resident Lectures: Overview Spinal Cord Stimulators: Lecturer; Hurd Auditorium
3. 04/10/2007: Morning Resident Lectures; Case presentation Stellate Ganglion blocks; Teaching faculty; Blalock14
4. 06/2007: Morning Resident Lectures; Case presentations, oral board practice session; Teaching faculty; Blalock14
5. 09/14/2007: Morning Resident Lectures; Applied physiology autonomic nervous system, Case presentations, oral board practice session; Teaching faculty; Blalock14
6. 02/01/2008: Residents/Pain Fellow Lectures: Prolotherapy
7. 04/01/2008: Residents Morning Lectures: The Role of Epidural Steroid injections in Pain Medicine; Teaching faculty; Blalock 14.
8. 05/01/2008: Residents Morning Lectures: Overview spinal cord stimulator in the treatment of chronic pain; Hurd Hall.
9. 11/17/08: Pain Fellow Lectures: Spinal cord stimulation for the treatment of Diabetic Neuropathy; Blaustein Pain Center.
10. 2/23/09: Pain Fellow Lectures: MBA Lecture Series; Blaustein Pain Center.

11. 04/30/09: Residents Morning Lectures: The Placebo Effect; Hurd hall.
12. 08/2009: Residents Pain Lectures: The Epidemiology of Pain;Blaustein Pain Center.
13. 09/21-09/25/2009: Residents Pain Lecture series: Blaustein Pain Center.
14. 10/19-10/23/2009: Residents Pain Lecture series: Blaustein Pain Center.
15. 11/2-11/6/2009:Residents Pain Lecture series: Blaustein Pain Center
16. 12/1-12/4/2009: Residents Pain Lecture series: Blaustein Pain Center
17. 01/11-01/15/2010: Residents Pain Lecture series: Blaustein Pain Center
18. 02/01/-02/05/2010: Residents Pain Lecture series: Blaustein Pain Center
19. 03/15-03/19/2010: Residents Pain Lecture series: Blaustein Pain Center
20. 04/12-04/16/2010: Residents Pain Lecture series: Blaustein Pain Center.

MENTORING ACTIVITIES

1. Chad Brummett, M.D. (Resident Department of Anesthesiology University of Michigan): Provided guidance and support with developing an independent research study and with presentations at National and Regional Meetings: **Presentation:** The Use of Pulsed Radiofrequency in the Treatment of Atypical Facial Pain- Midwest Anesthesia Resident Conference. Madison Wisconsin April 2005.

Research Project: The effect on duration of analgesia and anesthesia of dexmedetomidine as an additive to local anesthetic blocks for shoulder surgery. Served as co-investigator and provided assistance with developing the protocol, IRB application, and IND application to the FDA (2004). Dr Brummett is currently on faculty at the University of Michigan.

2. Christopher Clinkscales M.D. (Resident Department of Anesthesiology University of Michigan): Research mentor. Provided guidance with the protocol development for independent research study. This proposed study is in collaboration with the spine surgeon in the department of Neurosurgery University of Michigan – 2004.

Research Project: Randomized controlled, double blinded study assessing the efficacy of single – dose epidural morphine administered per-operatively in adult spine surgery.

3. Carmen Mays M.D. (Resident Department of Anesthesiology University of Michigan): Served as Faculty mentor (2003-2005). Provided guidance specialty rotations, and career advice and with preparation for in-service and final Board examination.

5. **Kevin Vorenkamp M.D.** (Resident Department of Anesthesiology University of Michigan): Served as Faculty mentor (2003-2005). Provided guidance with preparation for in-service examinations, specialty rotations, and career guidance. Dr Vorenkamp is currently on faculty at the University of Virginia and has been appointed the Director of the Pain Center since 2009 and Director of the Pain Fellowship Program since 2010. He currently collaborates with Dr. Williams on projects related to healthcare management.

6. **Julia McLeod M.D.** (Research Fellow 2011-2012). Dr. McLeod is a visiting physician from Australia who is currently spending the year with Dr.Williams and the faculty from the Carey Business school looking at developing new models to improve the efficiency of academic teaching centers involved in physician education and patient care. New models will be developed with novel use of discrete event simulation and the use of pre-processing of teaching activities to streamline patient throughput. In addition to the process re-engineering project, Dr. McLeod will also be involved in the design of a study to evaluate the novel use of MR spectroscopy in evaluating the effect of spinal cord stimulation in chronic pain patients. She applied for the competitive and prestigious scholarship award for her work her from the Royal Australasian College of Physical Medicine and Rehabilitation. She was awarded the Bruce Ford Travelling Scholarship for 2012.

7. **Artemus Flagg, M.D.,MPH.** Resident Spring Research Rotation 2012, Pain Medicine Fellow 2012-2013. Dr. Flagg will be spending the period March-June 2012 in a formal research rotation. This is a competitive rotation, peer-reviewed selection process. He will be involved in a project evaluating the novel use of spinal cord stimulation as a treatment modality for Marfans Syndrome patients with low back and lower extremity pain. He will be involved in this project from the end of is residency through the period of his Pain Fellowship. Including protocol design, patient recruitment, spinal cord stimulator implantation, data collection, analysis of data and preparation of the manuscript

CLINICAL ACTIVITIES

CERTIFICATION AND LICENSURE

Medical Licensure

2005- present Maryland Physician License #D0063019

2005- present Maryland CDS# M58745

1997- Jan 2007: #4301069818, Physician License and Michigan

1997- present # BW 7958208, Federal D.E.A.

1994- present Full Registration. General Medical Council. United Kingdom.

Certification

2004 Certification in Pain Medicine American Board of Anesthesiology

2003 Diplomate, American Board of Anesthesiology

1995 FFARCSI, Royal College of Surgeons in Ireland.

Clinical (Service) Responsibilities

9/1995-8/1997 Clinical Assistant, Dartford and Gravesham Health Authority, Dartford, Kent, United Kingdom. Responsibilities: Clinical Anesthesia in the Trauma/Orthopedic Center at West Hill Hospital.

10/2002-8/2005 Instructor in Anesthesia and Pain Medicine Department of Anesthesia University of Michigan School of Medicine. Responsibilities: Liver transplant/Major Vascular anesthesia division and Pain Medicine division. Resident and Fellow education in both Transplant anesthesia and Pain medicine. Full time 3-days/week (Tenure Track)

9/2005-1/2008 Anesthesia and Pain Medicine, attending, full time, clinical 3 days/week, Director Pain Center Johns Hopkins at Green Spring Station.

2/2008-7/2009 Anesthesia and Pain Medicine, attending, full time, clinical 3 days/week, Director Pain Center Johns Hopkins at White Marsh.

8/2009- Date Anesthesia and Pain Medicine, attending, full time, clinical 3 days/week, Blaustein Pain Treatment Center Johns Hopkins East Baltimore campus.

Clinical Program Building/Leadership

University of Michigan:

Program Development:

- As a part of the University of Michigan Executive MBA program requirement I was a member of the Executive Map team that developed the business plan for the Multidisciplinary **Minimally Invasive Surgical Program** (MIS), which included an educational component with a telemedicine center for remote regional, national, and world wide networking capabilities. Recommendations presented to the Dean of the Medical school, CEO of the University of Michigan Health Systems, and the Chairman of the Department of Surgery in October 2003. The project was implemented, commenced in October 2004 and completed by January 2005.

Johns Hopkins School of Medicine:

Sept 2005 – Jan 2008 Director Green Springs Pain Center, Director of the Off-Site Pain Program
Primary responsibility is to establish a state of the art private practice pain program for the diagnosis and treatment of outpatients.

Feb 2008 – June 2009 Director White Marsh Pain Center

Outcomes metrics

1. Financial: Rapid growth of billed charges/FTE Physician/month from \$17,000 in the first month to peak of \$108,000/month within the first calendar year of operations.
2. Clinical:
 - Significantly increased patient volumes by third year of operations to more than 300% volume seen in first year of operations.
 - Introduced on-going clinic time-flow studies that ensures that White Marsh Pain Center became the model for running on time.
 - Developed a strong Customer Centered Center reflected in patient satisfaction scores 95% based on satisfaction survey conducted on the Off-Site clinics.
3. HIT Development:
 - Electronic patient medical record: Developed templates, specific for the Pain Program utilizing Johns Hopkins IT resources. The tool has resulted in significant transcription cost saving to date. (~\$134,000)
 - Practice management: Developed patient/referring physician database for the purposes of practice management and outcomes research utilizing Anesthesiology Departmental IT resources.

July 2009- June 2011 Director Blaustein Pain Center, Johns Hopkins School of Medicine

- Introduced electronic physician scheduling system which significantly improved efficiency of clinic/divisional operations by utilizing software that enabled organized scheduling based on predetermined yearly metrics.
- Introduced development Operations flow diagram to enhance team understanding of complexity of the divisional operations which included front office/Clinic/procedure suite component.
- Introduced time flow studies as part of a Clinic process re-engineering project with the aim improving clinic operations with prior to this project run on time rate was <25% this improved to *** by the institution of this study.
- Collaboration with The Carey Business School Johns Hopkins, depart met of Operations to develop a **first model** for increasing operational efficiency in academic Pain Centers through modification of teaching/clinical encounter paradigm- **see publication**: *Using Process Analysis to Assess the Impact of Medical Education on the Delivery of Pain Services: A Natural Experiment; Williams K.A. et al*
- Introduced Team based Service excellence group which through standardization of operations and specific service enhancing projects improved patient satisfaction scores by subsections by up 15-40% by subsections (Nursing and Physician groups respectively).

Clinical Extramural Funding

ORGANIZATIONAL ACTIVITIES

Institutional Administrative Appointments

Departmental

University of Michigan:

Anesthesiology Quality Assurance Committee: 2003 - 2005

Institutional

University of Michigan:

1. Clinical Research Billing Committee: 2004 - 2005

The purpose of this committee is to assess the magnitude of the research billing compliance problems and to assess the risk to The University of Michigan Health System. In addition to the committee is charged with the function of providing possible solutions for all of the compliance issues associated with clinical research billing; and to re-engineer the research billing process for greater efficiency.

2. Pain Sedation Analgesia Committee: 2004 – 2005

Johns Hopkins:

- 1.2005-2009: Director Off-Site Pain Management Program
- 2.2005-2008: Director Pain Management Center Johns Hopkins at Green Spring Station
- 3.2008-2009: Director Pain Management Center Johns Hopkins at White Marsh
- 4.2009-2011: Director Blaustein Pain Treatment Center Johns Hopkins East Baltimore campus
- 5.2010-Date: Trustee, Board of Trustees Howard County General Hospital-Member of Johns Hopkins Medicine.
6. 2011- Present: Continuing Medical Education Advisory Board, Johns Hopkins School of Medicine

EDITORIAL ACTIVITIES

2011- Present: Member Editorial Board Pain Medicine Journal : Section editor-Business of Medicine Section.

JOURNAL PEER REVIEWER

1. Pain Medicine
2. Anesthesia and Analgesia
3. Journal of the National Medical Association

MEMBERSHIP IN PROFESSIONAL SOCIETIES

1998 - Present	American Society of Anesthesiologists
1998 - Present	International Anesthesia Research Society
1995 - Present	Manchester Medical Society, United Kingdom
2003 - Present	American Society of Interventional Pain Physicians
2003 - Present	American College of Physician Executives
2008 - Present	American Academy of Pain Medicine
2010	New York academy of Medicine

PROFESSIONAL INVITATIONS

1. Guest Reviewer: Pain Medicine : Special Issue on Pain and Disparities - January 2005
2. Judge: Midwest Anesthesia Resident Conference : Madison Wisconsin - April 2005
3. Invited Lecturer Society of Interventional Radiologist: 2007
4. Invited Instructor –Hands on workshop Society of Interventional Radiologist
5. Research Committee American Academy of Pain Medicine. 2009-date

CONGRESSIONAL BRIEFINGS AND TESTIMONIES

1. Congressional Staffers Briefing: Mini-medical school on the importance of appropriate assessment and management of pain, Health, Education, Labor, and Pensions Committee - Substance Abuse and Mental Health Services Administration Reauthorization, August 3, 2007, U.S. Senate.

CONSULTING ACTIVITIES:

1. Chief physician consultant for **Case Management Covenants LLC:**

Case Management Covenants is a healthcare consulting firm that specializes in helping hospital clients build value and enhance profitability through development of efficient claims and denial management processes. The role as chief physician consultant is to provide leadership in the development of physician education programs and development of strategies to reduce physician denial activity. Current role also includes working with upper management in strategic planning and new product development for the company.

HONORS AND AWARDS

2011 Teacher of the Year Award, Pain Fellowship Program. Department of Anesthesiology and Critical Care Medicine, Division of Pain Medicine, Johns Hopkins University School of Medicine.

2005 Clinical Instructor of the Year, Department of Anesthesiology, University of Michigan

2002 Scholarship Award Executive MBA Program University of Michigan Business School

2002 First place award for poster presentation (An Unusual presentation of Piriformis Syndrome) Midwest Anesthesia Resident Conference Nebraska

2001 Resident Award for Academic Excellence (Class of 2001)

2001 The Peter. J. Cohen, Resident Research Award (Class of 2001)

2001 The Robert. B. Sweet Resident Award for Humanitarian and Physician (Class of 2001).

2000 Chief Resident Department of Anesthesiology, University of Michigan