OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Hina Faisal

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

POSITION TITLE: Assistant Professor of Clinical Surgery & Medicine

 Anesthesiologist

 Critical Care Physician

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

| INSTITUTION AND LOCATION | DEGREE(if applicable) | Completion DateMM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| Dow Medical College, DUHS, Karachi, PakistanDow Medical College, DUHS, Karachi, PakistanRoyal College of Surgeons, Dublin, IrelandRoyal College of Surgeons, Dublin, IrelandUniversity of Tennessee College of Medicine, Chattanooga, TNCase Western Reserve University (MetroHealth) program Cleveland, OHUniversity of Texas, Houston, McGovern Medical School, Houston, Texas  |  MB; BS InternshipBST CCBSTResidency Residency Fellowship  | 03/200508/2004 – 07/200507/2007 – 06/200912/200907/2011 – 03/2013 06/2014- 06/201707/2017 – 06/2018  | Medicine & SurgeryMedicine & SurgeryGeneral Surgery General Surgery General Surgery Anesthesiology Anesthesia Critical Care  |

**A. Personal Statement**

Anesthesia, critical care physicians are uniquely skilled in diagnosing and managing perioperative or postoperative cognitive dysfunctions and delirium. I have training and expertise as an anesthesiologist & critical care physician and the motivation necessary to successfully carry out the proposed research project. Particular interest in acute postoperative pain and postoperative cognitive dysfunctions for surgical patients and opioid-free multimodal analgesia and innovative technique for delirium preventions led our team to this current research project. After joining the Houston Methodist Hospital System as a surgical critical care physician, My team developed the "Opioid free multimodal pain management pathway" for acute postoperative pain in the surgical intensive care unit. Additionally, we created a low dose of lidocaine infusion protocol for acute postoperative pain refractory to standard pain management, approved by the system medication safety committee, Pain Committee, and ERAS committee of Houston Methodist hospital system, which is available to use across all Houston Methodist Hospital System. The proposed research project investigates strategies to prevent postoperative cognitive dysfunctions/ Delirium in critically ill surgical patients associated with high morbidity, mortality, and poor patient outcomes. We hypothesize that virtual reality-based neurocognitive stimulation with non-benzodiazepine opioid-free analgo-sedation will be superior in preventing the onset of delirium and will be helpful in the management of delirium in critically ill patients if patients develop delirium.

The expertise needed to carry out the proposed studies began to develop while pursuing a research scholar position under the mentorship of Dr. Daniel Stanley at the University Of Tennessee College Of Medicine, Chattanooga, TN. As PI or co-Investigator on several projects 1, 2, 3, I laid the groundwork for the research studies trial and completed these projects (e.g., staffing, research protections, budget), collaborated with other researchers, and produced peer-reviewed publications. Furthermore, my skills were tremendously enhanced by attending and participating in the Mentored Clinical Research Training Program (MCRTP) at Weill Cornell and Houston Methodist Program. I acquired the skillset to develop a clinical research project proposal and embark on a clinical research career pathway.

Therefore, I am aware of the importance of frequent communication among project members and constructing a realistic research plan, timeline, and budget. The current application builds logically on my prior work. This project will build the research foundation for innovation in delirium prevention and management.

1. **Faisal H**, Ali ST, Xu J, Nisar T, Sabawi M, Salazar E, Masud FN. Carboxyhemoglobinemia in Critically Ill Coronavirus Disease 2019 Patients. Journal of Clinical Medicine. **2021**; 10(12):2731. <https://doi.org/10.3390/jcm10122731>
2. Zia M, Muniz Castro J, **Faisal H**, Bonville DJ. Pre-emptive ECMO cannulation in a patient with severe pulmonary hypertension and acute appendicitis undergoing appendectomy. Trauma Surg Acute Care Open. **2020** Nov 27; 5(1):e000610. doi: 10.1136/tsaco-2020-000610. PMID: 33305008; PMCID: PMC7703420.
3. **Hina M**, Hourigan JS, Moore RA, Stanley JD. Surgeon-administered conscious sedation and local anesthesia for ambulatory anorectal surgery. Am Surg.2014 Jan; 80(1):21-5. PMID: 24401505
4. **Hina M,** Lynch BA, Herdman AV, Stanley JD. Management of sporadic pancreatic desmoid tumors. Am Surg.2012 Jan; 78(1): E1-3. PMID: 22273281.
5. **Hina M**, Hunt DJ, Stanley JD, Dart BW 4th. Pellet venous embolism from a destructive shotgun injury. Am Surg. 2014 Jan; 80(1):21-5. PMID: 21944501.

**B. Positions, Scientific Appointments, and Honors**

**Positions and Employment**

03/2019 – Current: Critical Care Physician at Surgical Liver Transplant ICU, Anesthesiologist

 Houston Methodist Hospital, Houston, Texas

07/2018 – 02/2019: Anesthesiologist/Critical Care Physician, United Anesthesia Partners, Houston, Texas

10/2013 – 04/2014: Locum Registrar, Emergency Medicine, University Hospital Galway, Galway, Ireland

04/2013 – 06/2013: Registrar, Dept. of Surgery, Wexford General Hospital, Wexford, Ireland

01/2010 – 06/2010: Locum Senior House officer, Stethoscope Limited Company, Ireland

07/2009 – 12/2009: Senior House Officer, Dept. of Surgery, Waterford Regional Hospital, Waterford, Ireland

12/2006 – 03/2007: Honorary Senior House Officer, Dept. of Endocrinology, Royal Liverpool University Hospital, NHS Trust, Liverpool, England, UK

## Other Experience and Professional Memberships

10/13/2018 – 12/31/2028: American Board of Anesthesiologist & Critical Care Medicine Board Certification

04/26/2018 – 12/31/2028: American Board of Anesthesiologist Certification

07/2010 – 06/2011: Research Scholar, Dept. of Surgery, University of Tennessee College of Medicine, Chattanooga, TN

11/2005 – 11/2006: Honorary Clinical/Research Fellow, Dept. of General/ Vascular Surgery, Bart's & The London, NHS Trust, London, England, UK

**Honors/Prizes**

2020 The Mentored Clinical Research Training Program (MCRTP) at Weill Cornell and Houston Methodist.

2016 Award for the best poster and podium presentation at The Pinchak Symposium at Case Western Reserve University, Cleveland, OH.

**Current Grant Support**

Virtual Reality-Based Cognitive Simulation for Prevention of Delirium 2021-2022

Principal Investigator – Hina Faisal, MD $50,000

Reliant Innovation Funds, Texas A& M

Lidocaine Infusion for Acute Pain in Critically ill Surgical Patients 2019-2020

Principal Investigator – Hina Faisal, MD $15,000

Funded by Department of Surgery, Houston Methodist Hospital

Learning Curve of Ultrasound-guided Surgeon-Administered 2019-2020

Transverse Abdominis Plane (UGSA-TAP) Block on Porcine Model $10,000

Principal Investigator – Hina Faisal, MD

Funded by Department of Surgery, Houston Methodist Hospital

**C. Contributions to Science**

**My first publication 1 was in 2006, just after graduation from medical school. I was a co-investigator in the project. My primary contribution was to interview the subjects, fill the questionnaire, collect data on excel sheets, and analyze the data and manuscript writing. This study aimed to** determine preoperative informed consent practice in a tertiary public sector teaching hospital in developing countries. A prospective observational study was carried out using a structured questionnaire-based interview technique that concluded and highlighted the poor patient knowledge about surgical procedures and the scarce information provided. The information was disseminated to the health care system that current informed consent practice, which was being practiced by the doctors in a public sector teaching hospital of Karachi, is below standard to international and ethical acceptability. Nevertheless, a large number of patients were satisfied with the information provided during the informed consent process.

1. Muhammad Farhan Amin, Masood Jawaid, Shafiq-ur-Rehman, Mudassir, **Hina,** Saad Bader Zakai. An audit of information provided during preoperative informed consent. Pak J Med Sci 2006 March; 22(1):10-13. [28832122](https://www.researchgate.net/publication/288372122_An_audit_of_information_provided_during_preoperative_informed_consent).

As a clinical / research fellow, I investigated and reported 2 a cohort of patients who had suffered an arterial embolism to see whether a patent foramen ovale (PFO) was an identifiable cause. Our study results revealed that the incidence of a PFO was no higher than that found in the general population (3/15, 20%). There was a high prevalence of male smokers with associated predisposing factors leading to a DVT.

1. Ali Kausar Rushdi Y, **Hina H**, Patel B, Cross FW. The incidence of peripheral arterial embolism in association with patent foramen ovale (right-to-left shunt). JRSM Short Rep. 2011 May; 2(5):35. doi: 10.1258/shorts.2011.010074. Epub 2011 May 3. PMID: 21637396.

Anorectal procedures are often performed in an outpatient setting using a variety of anesthetic techniques. One technique that has not been well studied was surgeon-administered conscious sedation along with local anesthetic. My interest in pain management and anesthesia in the surgical population led me to work on this study and was published as a primary investigator. 3 The purpose of this study was to evaluate the use of this technique, emphasizing safety, efficacy, and patient satisfaction. There were no early major cardiac or respiratory complications. Ninety-seven percent of the patients surveyed reported a high degree of satisfaction. Surgeon-administered conscious sedation with local anesthesia was well tolerated for outpatient anorectal surgeries.

1. **Hina M**, Hourigan JS, Moore RA, Stanley JD. Surgeon-administered conscious sedation and local anesthesia for ambulatory anorectal surgery. Am Surg.2014 Jan; 80(1):21-5. PMID: 24401505. <https://www.ncbi.nlm.nih.gov/pubmed/24401505>.

Moreover, I worked on multiple case reports and published these reports 4, 5 to the medical community to disperse rare cases' knowledge and information.

1. **Hina M**, Lynch BA, Herdman AV, Stanley JD. Management of sporadic pancreatic desmoid tumors. Am Surg.2012 Jan; 78(1): E1-3. PMID: 22273281, <https://www.ncbi.nlm.nih.gov/pubmed/22273281>.
2. **Hina M**, Hunt DJ, Stanley JD, Dart BW 4th. Pellet venous embolism from a destructive shotgun injury. Am Surg. 2014 Jan; 80(1):21-5. PMID: 21944501 <https://www.ncbi.nlm.nih.gov/pubmed/21944501>
3. **Hina Faisal**, Johnson SN and Gaber AO (2020) Severe Spinal Column Deformity from Scoliosis with Harrington Rods Implant. ARCH Women Health Care Volume 3(4): 1-1.

**While working as a critical care physician in COVID- Critical Care Unit, I diagnosed and managed rare hypoxia cases, including COVID -19 disease-associated abnormal hemoglobin. I investigated and reported 7 to the medical community** the successful management of a case of refractory hypoxia due to acutely acquired methemoglobinemia in a patient undergoing treatment for coronavirus disease 2019 (COVID-19) pneumonia. The cause of methemoglobinemia in this patient remains unknown. Furthermore, I investigated the incidence and etiologies of carboxyhemoglobinemia and published retrospective study result 8. In this retrospective study, we recommended monitoring the COHb level routinely in critically ill COVID-19 patients to allow more effective and prompt treatment.

1. **Faisal H**, Bloom A, Gaber AO. Unexplained Methemoglobinemia in Coronavirus Disease 2019: A Case Report. *A A Pract*. 2020;14(9):e01287. doi:10.1213/XAA.0000000000001287
2. **Faisal H,** Ali ST, Xu J, Nisar T, Sabawi M, Salazar E, Masud FN. Carboxyhemoglobinemia in Critically Ill Coronavirus Disease 2019 Patients. J Clin Med. 2021 June 21;10(12):2731. doi: 10.3390/jcm10122731. PMID: 34205655; PMCID: PMC8234747.

**D. Additional Information:**

As a resident and critical care fellow, I have participated in national and international meetings, and abstracts are available on the meeting websites. I have also taken courses in research design, statistics, and data analysis. (See below)

**Scholastic Performance**

Abstracts:

1. Trends in Sepsis Mortality in Cancer Patients: Review of a Nationwide Database. The Anesthesiologist Annual Meeting - 2018. October 13, 2018
2. Severe Myxedema Coma: A Diagnostic Dilemma and Management Challenges. IARS 2018 annual Meeting. April 28 – May 1, 2018.
3. Combined Impella 5.0 Device and Intra-Aortic Balloon Pump for Management of Cardiogenic Shock. Society of Cardiovascular Anesthesiology 39th Annual Meeting, April 22- 26, 2017.
4. An interesting case of postpartum seizure and headache – A diagnostic challenge. 48th Annual Meeting of Obstetric Anesthesia. May 18-22, 2016.

**Research courses**

08/2019: Med-IQ Online Risk & Patient Safety Education Program, Online Med-IQ

08/2019: HIPAA Compliance Curriculum 2019, Online HCCS, Health Stream Company

08/2019: 2019 Security Awareness Training, Online HCCS, Health Stream Company

06/2019: GCP for Clinical Trials with Investigation Drugs and Medical Devices-US FDA Focus, Albert Einstein College of Medicine, The Bronx, NY, USA

06/2019: Financial Issues in Research, Collaborative Institutional Training Initiative (CITI Program), Houston Methodist Research Institute, Houston, TX, USA

11/2007: Research knowledge management & endnote, Sligo General Hospital, Ireland

10/2007: Critical appraisal of research publication, Sligo General Hospital, Ireland

09/2007: Abstract Writing & Poster Design, Sligo General Hospital, Ireland

**Workshops/Presentations**

11/2020: Moving from pain control to outcomes management. CME activity- Grandround, Houston Methodist Hospital. Houston, TX, USA, 01/2020

01/2020: Difficult Airway Management, including Cricothyroidotomy, 2nd Annual Houston Methodist Critical Care Symposium Workshop, Houston Methodist Hospital. Houston, TX, USA, 01/2020

04/2018: Poster Presentation: Severe Myxedema Coma, A Diagnostic Dilemma and Management Challenges, Association of University Anesthesiologist (AUA) Annual Meeting. Chicago, IL, USA,

04/2017: Poster Presentation: Combined Impella 5.0 Device and Intra-Aortic Balloon Pump for Management of Cardiogenic Shock, Society of Cardiac Anesthesiologist (SCA) Annual Meeting. Orlando, FL, USA, 04/2017

03/2017: Oral Presentation: An interesting case of postpartum headache & seizure – A Diagnostic Challenge, The Pinchak Symposium. Cleveland, OH, USA.

01/2017: Left Ventricular Assisting Devices, Senior Grand Rounds, Metro Health Medical Center. Cleveland, OH, USA.

10/2016: Poster presentation: a-The Stiff Person Syndrome: A Chronic Pain Management Challenge, The Anesthesiology Conference. Chicago, IL, USA

07/2016: Opioid Therapy & CDC Guidelines, Senior Grand Rounds Metro Health Medical Center. Cleveland, OH, USA,

**Clinical Pathway and Protocol Development Leader**

***Acute postoperative pain management with minimum opioid / opioid-sparing technique for the division of Acute Care Surgery / Surgical – Liver Transplant ICU: Completed***

Variations in clinical practices related to acute postoperative pain management and a high dose of narcotics were identified. I discussed the problem and risk associated with this practice with a member / Practitioner in the group. Commitment and support from Leadership and other Clinicians in practice were obtained.

The purpose of this pathway was to employ an evidence-based approach to multimodal pain management that improves overall outcomes, patient satisfaction, pain management, and patient functional status while minimizing opioid-related adverse events and decreasing length of stay**.**

**Administrative Activity**

10/2019 – Current: Co-director: Point of Care (POC) Ultrasound Project, Houston Methodist Hospital, Houston, TX, USA

09/2019: Ultrasound Billing for ICU Procedures, Houston Methodist Hospital, Houston, TX, USA