TITLE: Spatiotemporal Mapping of Community Factors in Perioperative Pain Management

FACULTY MENTOR: Patrick Tighe MD MS

RESEARCH PROJECT DESCRIPTION (brief overview of background, hypothesis, methods, role of medical student, funding and relevant publications)

BACKGROUND AND SIGNIFICANCE –
Severe acute postoperative pain affects over 50% of surgical patients. Recent work by our group suggests spatial disparities in patient experience with inpatient pain management at both regional and national scales. This project will extend upon this prior work by applying spatiotemporal analyses to examine disparities in patient experience with pain management at the local scale.

HYPOTHESIS – We hypothesize that spatial location of patient residence will be associated with 1) postoperative pain scores, and 2) postoperative analgesic prescriptions. We further hypothesize that this association will be maintained after controlling for sociodemographic factors, type of surgery, and comorbidity burden.

METHODS AND MATERIALS AND DATA ANALYSIS – We will request pain score assessments from adult surgical patients who received operative care at any UFHealth location between May 2011 and December 2014, along with sociodemographic and procedural details. Patient addresses will be encrypted in a HIPAA-compliant fashion. Using ArcGIS, we will test for global and local Moran’s index to determine the degree and type of spatial clustering across multiple distances on a regional basis.
ROLE OF MEDICAL STUDENT – The medical student’s roles will include integrating data from multiple sources, encoding into a geospatial platform using ArcGIS, and then using ArcGIS to calculate measures of clustering such as Moran’s Index across multiple distance thresholds.

FUNDING SOURCE – This work will be supported by the Dept of Anesthesiology; the PI is supported by NIH K23GM102697.

RELEVANT PUBLICATIONS –