# Exposure to Physical Activity Facilities and Exercise before SCA onset

MPH Thesis aims from Richa Gupta

This study will investigate how environmental factors, such as physical activity facilities, are potentially associated with incidence and survival from Sudden Cardiac Arrest (SCA). Four study aims were selected to assess this relationship and are outlined below:

**Study Aims**

1. Examine how survival differs amongst cases that experienced SCA onset during exercise from cases that did not.

2. Examine how the residential neighborhood availability of physical activity facilities:

* 1. Are associated with reported physical activity amongst controls
  2. Differs for SCA cases versus controls
  3. Predict survival amongst SCA cases

Data describing residential address, SCA incidence/survival, and health behaviors will be obtained from the Cardiac Arrest Blood Study Repository (CABS-R) database.

Data regarding physical activity facilities will be obtained from the National Establishment Time-Series (NETS) database. For this study, physical activity facilities will be defined as light/moderate, vigorous, and multi-use physical activity facilities. Its unit of analysis will be characterized as density per square kilometer at the census tract or 5 kilometer buffered census tract centroid.

Logistic regression models will be used in the analysis. All models will use cluster robust standard errors to account for non-independence at the census tract level and control for individual and neighborhood-level confounding variables. Individual level confounders are age, sex, race, and sociodemographic status, which are recorded in the CABS-R database.

Neighborhood level confounders are median household income, percent poverty, and percent black at census tract, which will be obtained from 2000 US Census Data.