The purpose of this document is to explain how I clipped the air pollution data, so the CSV file only included the data of interest (i.e. data within 5-20 miles of CHOA).

Of note, these steps were performed using QGIS, v3.22.5.

**Create shapefiles**

Here, I explain how I created the shapefiles, which provide overlays of the following dimensions:

* Choa\_20\_miles (circle of radius 20 miles from midpoint of HS, EG, and SR)
* Choa\_10\_miles (three overlapping circles, each of radius 10 miles, with midpoints at HS, EG, and SR)
* Choa\_5\_miles (three overlapping circles, each of radius 5 miles, with midpoints at HS, EG, and SR)
* Note: I chose to create CHOA\_20\_miles from midpoint (rather than each hospital) as the overall distance between the hospitals is much smaller than 20 miles, so the overall area is less affected, whereas for 10 and 5 miles, the distance between the hospitals is more significant

1. In Qgis, load Google Road map (see separate sheet for how to load Google Road)
2. Qgis 🡪 layer 🡪 create new shapefile (points)
   1. Add points to Google Road map where EG, SR, and HS are (can use Googlemaps.com for reference)
   2. Save shapefile as CHOA\_EG\_SR\_and\_HS\_Points
3. Using GoogleMaps.com (right-click for distance measurements), find points on map that are 20 miles from midpoint, and then 10 and 5 miles from each EG, SR, and HS
4. Qgis 🡪 layer 🡪 create new shapefile (polygon)
   1. In icon toolbar on top, click pencil (for toggle edit), and then in toolbar below, click create circle from midpoint and outer point
   2. Midpoints will be: midpoint of EG, SR, HS (for 20 miles), and then each individual hospital (EG, SR, or HS) for 10 and 5 miles
   3. Note, for the 10 and 5 mile layers, type in the Processing Toolbox (if not available, find at top) “dissolve”, which will allow you to combine the 10 and 5 mile circles into one shapefile
5. Layer 🡪 Add layer 🡪 Add delimited text layer
   1. This allows you to add the CSV file you wish to clip
6. Right click on new layer (in the layers text box) 🡪 Layer CRS 🡪 Set project CRS from layer
   1. This ensures the shapefile and the CSV file are the same CRS
7. In the processing Toolbox, type “clip”
   1. Choose the overlay and input layers as desired, be sure to save output file as CSV file, and click run
   2. Note, it will say “No spatial index exists for input layer, performance will be severely degraded.” This just means process will run slow, but output will be accurate. If it takes a long time to clip, consider first clipping the largest one (e.g. in this case, 20 miles), remove the full CSV file from the Qgis project, and reload the newly created (and much smaller) 20 mile CSV file, and clip the 5 and 10 mile CVS files from this file.