# **Take-Home Data Challenge**

**Description**

N1 Health’s client, a national Medicare Advantage plan, is seeking to understand how best to use its resources to address food access challenges in its membership. N1 Health has been tasked with presenting a short analysis (~5-10 minutes) of publicly available data to the Chief Medical Officer to answer this question. The guiding questions are:

1. Where should we deploy a food access program?
2. How many people will be included? How many might be successfully engaged?
3. Which subgroup of the population might benefit the most from the program?
4. What is the projected impact of this program?

You may use general research and simplifying assumptions to answer any of the questions.

**Data**

Please use these two datasets as the primary source for analysis. The core data within these files will also be included in a SQLite database named “challenge.db” that will be attached to the email.

* CDC - 500 Cities Project - <https://chronicdata.cdc.gov/500-Cities/500-Cities-Census-Tract-level-Data-GIS-Friendly-Fo/k86t-wghb>
* FDA – Food Atlas - <https://www.ers.usda.gov/data-products/food-environment-atlas/data-access-and-documentation-downloads/>
* Note that FIPS codes may be useful for combining this data. Use this reference to understand their structure within the above files: <https://www.census.gov/programs-surveys/geography/guidance/geo-identifiers.html>

**What we’re evaluating for:**

* Can you produce a compelling analytical story from novel, messy datasets?
* Can you communicate these results to a non-technical audience?

**Some more specific guidelines:**

1. Please submit your code and visualizations in at one of these forms. This may be submitted via a git repository, attachments by email, or by other hosted file server.
   1. Preferred - Jupyter Notebook with code and visualizations
   2. Other script or code, e.g. RMarkdown file, SQL script, etc.
   3. Excel file with all work shown
2. Please create 2-3 key data visualizations to answer the questions detailed in the description. More visualizations are fine but think of them as an appendix rather than a part of the deliverable.
3. You’ll be given a chance to present the analysis, and you will be asked questions about both the results and the code. Please create a short presentation with about 5 slides to show your results.
4. This project is expected to take around 4 hours of your time over the course of one week. We are evaluating only for your instincts and thought process in this work, not for the time you spent on it. If needed, we strongly recommend stopping work on the project early and describing your analytical plan during the presentation.
5. If any questions come up, please feel free to email the hiring manager throughout the process.