UrsaHealth

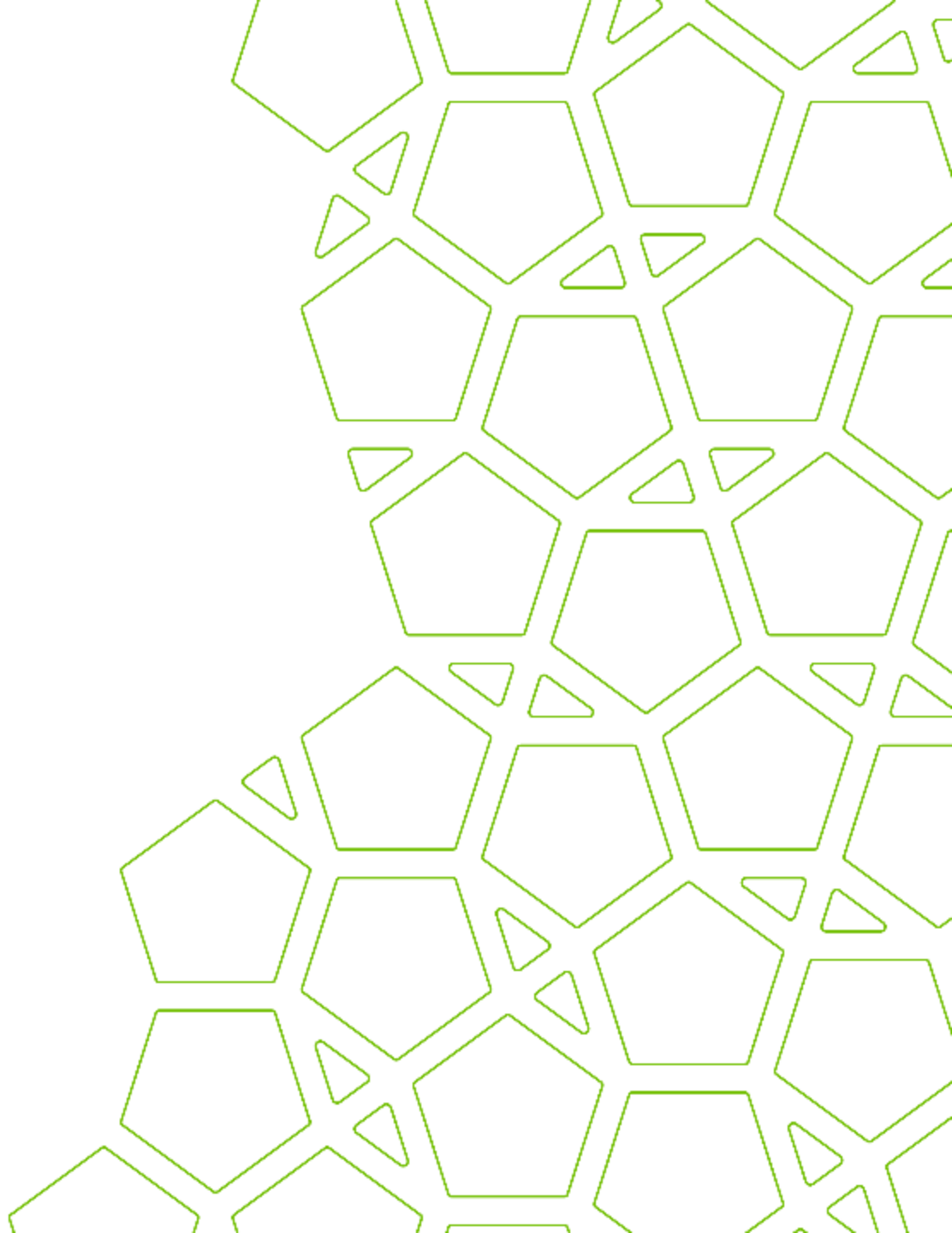
Hospital Readmission Analysis Exercise

Prepared for Nashville Software School

Contents

- The Scenario
- The Project
- The Data
- Tips for Success

The Scenario



Scenario: Reducing 30-day Readmissions

- You're working as an analyst on the Clinical Innovation team at GreatCare, a health insurance company or "payor".
- The team is led by a physician, the Chief Clinical Innovation Officer (CCIO), who is concerned about the **30-day readmission** rate for GreatCare's members (patients) that were admitted to a hospital.
- The reason for this is not only a concern around clinical quality but also financial. While some readmissions cannot be avoided, there are many that can with proper discharge planning.
- One new intervention he's put in place is having a special team of nurses employed by the insurance company focused on discharge coordination for members being discharged from the hospital.
- These nurses coordinate services for patients to ensure they have what they need when they leave the four-walls and go home. These nurses are called **Transition Care Managers (TCM)**.

Scenario: Reducing 30-day Readmissions

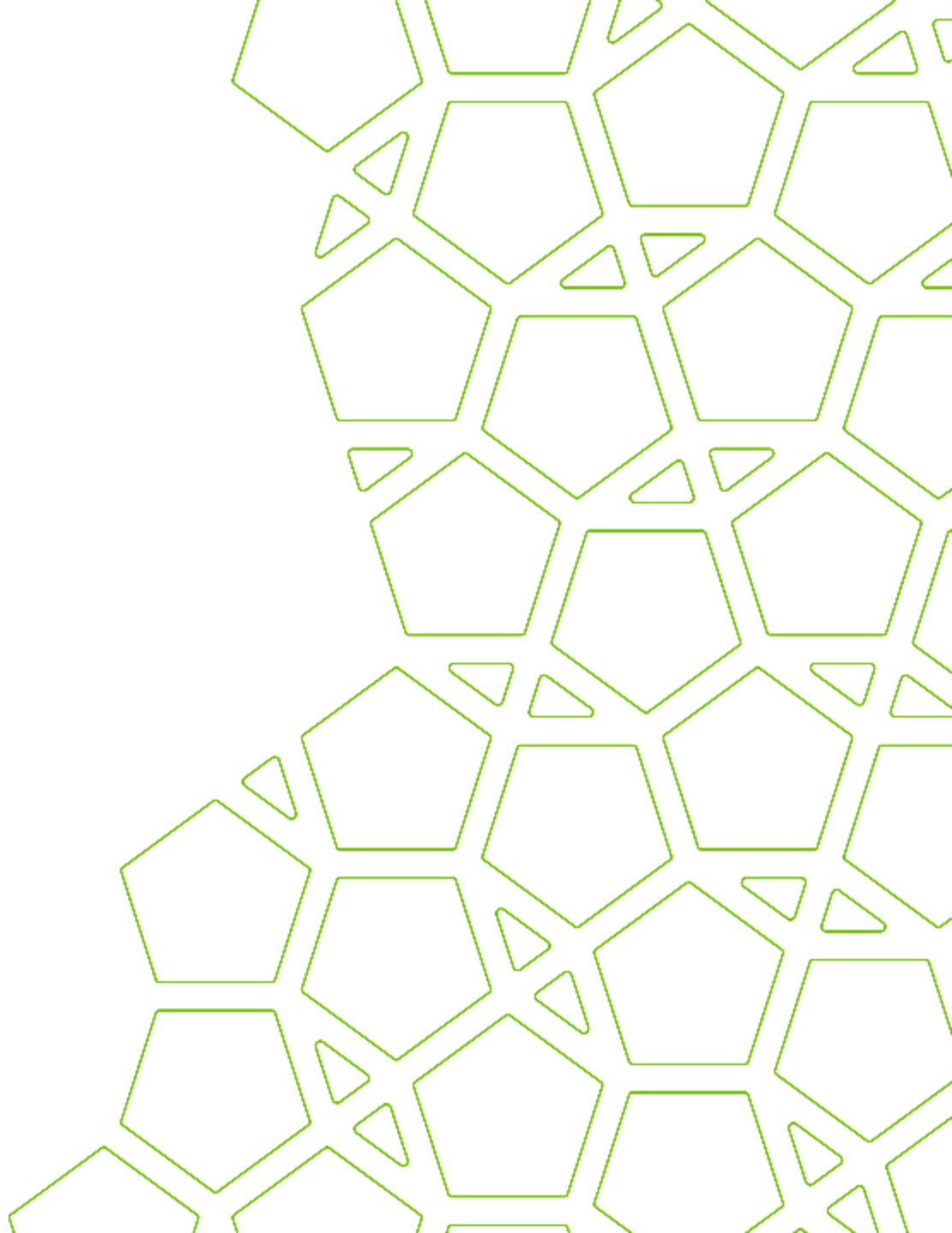
- Among the various services the TCMs coordinate for patients being discharged from the hospital, one of the most important is getting the patient in to see their **Primary Care Physician (PCP)** in the first 7 days following discharge.
- The hypothesis is that the PCP is best positioned to continue long term management of the patient; ensuring chronic medications are refilled, any home care services (e.g. wound care or physical therapy) are ordered, and any follow up tests (such as blood work) are taken and reviewed. This is believed to reduce any avoidable 30-day readmissions.
- Benefits the member/patient: less time in the hospital & often much less personal cost)
- Benefits the insurance company: less cost higher member satisfaction
- Benefits the Primary Care Physician: better insight into sudden changes in the patient's condition

Scenario: Reducing 30-day Readmissions

Your CIO has asked for some analytics to help monitor and facilitate this particular part of the Transitional Care Manager's tasks and has asked a few questions to help start understanding the “size & shape” of this issus:

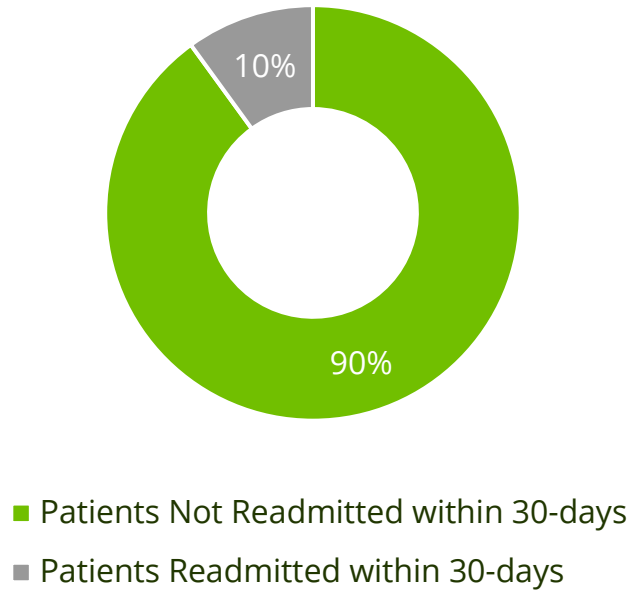
1. What is our 30-day all cause readmission rate across hospitals our members are admitted to?
2. What percent of patients have a PCP visit within a week of discharge?
3. Do either vary by individual or group PCP’s?
4. Which individual or PCP groups should we make an extra effort with to build a relationship? Which have the highest volume?
5. What percent of our patients do not have a PCP assigned or haven't seen their PCP recently?
6. Are there certain patients we should focus on (e.g. frequent fliers)?
7. From this, what could a version 1 of an actionable dashboard or intervention list look like to support the Transition Care Managers?

The Project



Project: Measure the 30-day readmission rate

Among patients admitted for inpatient care, those who were readmitted for inpatient care for any reason within 30-days of discharge



$$Measure = \frac{Realization\ of\ Performance\ (Numerator)}{Opportunity\ for\ Performance\ (Denominator)}$$

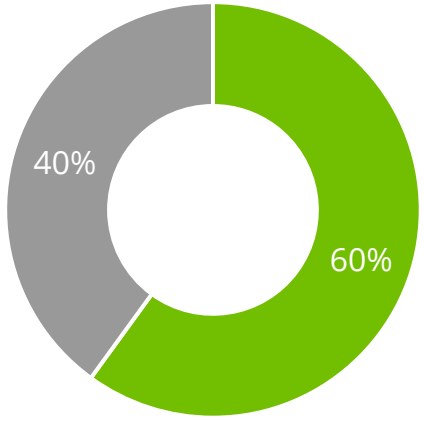
$$Measure = \frac{The\ patients\ readmitted\ within\ 30\ days\ (Numerator)}{All\ patients\ admitted\ for\ inpatient\ care\ (Denominator)}$$

Project: Measure the 30-day readmission rate

- Present the measure's value on a monthly basis
- Present the measure's mean value
- Present the measure's value in a way that gives us a profile of each hospital

Project: Measure patients with a PCP visit within 7 days of discharge

Among patients discharged from inpatient care, those who saw their PCP within 7 days



- Patients with PCP visit within 7 days of discharge
- Patients without PCP visit within 7 days of discharge

$$Measure = \frac{Realization\ of\ Performance\ (Numerator)}{Opportunity\ for\ Performance\ (Denominator)}$$

$$Measure = \frac{The\ patients\ within\ 7\ days\ of\ discharge\ (Numerator)}{All\ patients\ discharged\ from\ inpatient\ care\ (Denominator)}$$

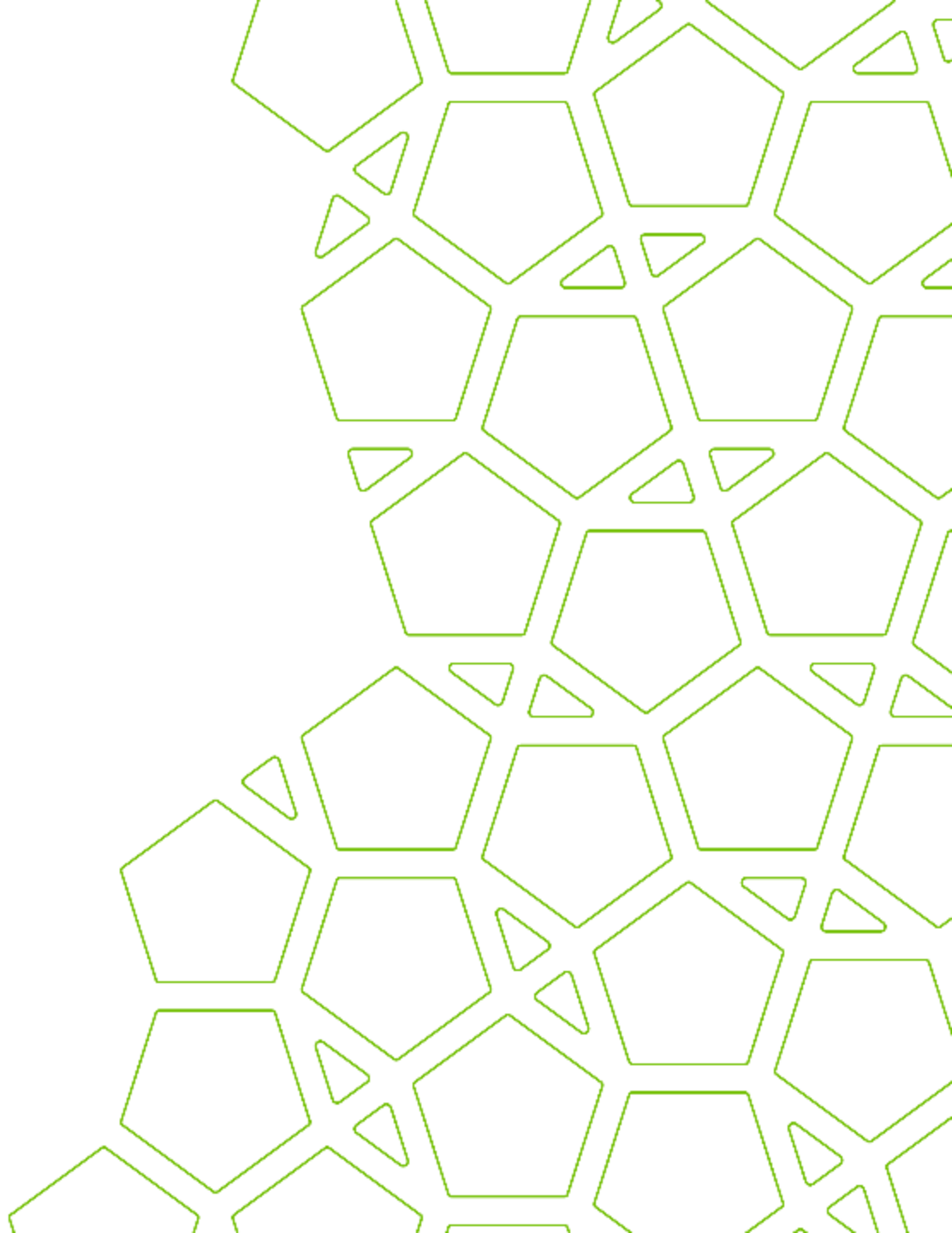
Project: Measure patients with a PCP visit within 7 days of discharge

- Present the measure's value on a monthly basis
- Present the measure's mean value
- Present the measure's value in a way that gives us a profile of individual or group primary care providers

Project: Bonus Questions

- Which individual or PCP groups should we make an extra effort with to build a relationship? Which have the highest volume?
- What percent of our patients do not have a PCP assigned or haven't seen their PCP recently?
- Are there certain patients we should focus on (e.g. are there frequent fliers or certain conditions more commonly readmitted)?
- From this, what could a version 1 of an actionable dashboard or intervention list look like to support the Transition Care Managers?

The Data



About the Data

- All data is fake but realistic. There is no Protected Health Information (PHI).
- We will be working data available to the insurance company “GreatCare”. Your team has several reporting data marts already set up based off claims (payment) & membership data.
- We will be supplementing that data with publicly available reference data.

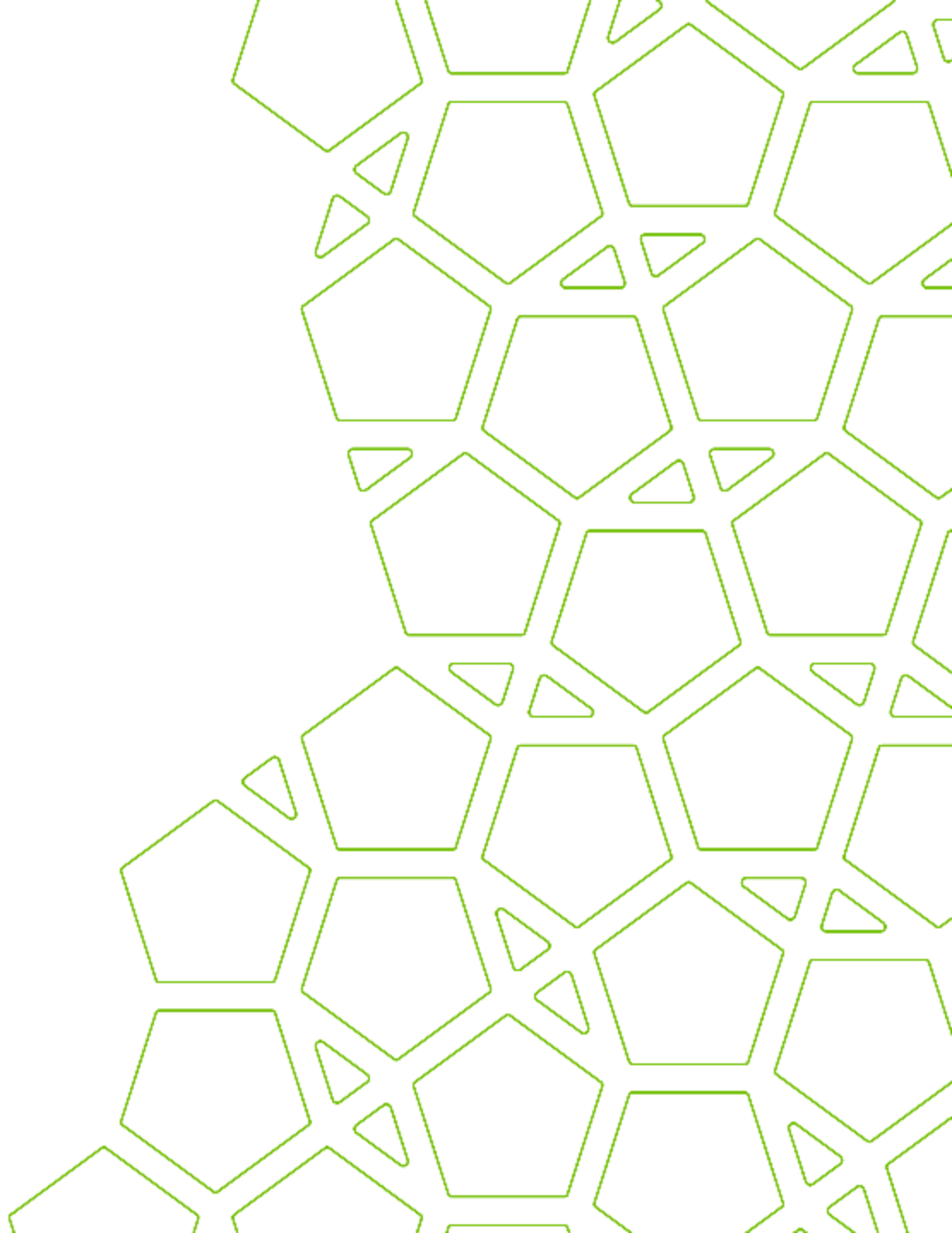
Data Provided GreatCare

- **Membership**: One row per patient who has had an active membership with GreatCare across the time period of this analysis
- **Inpatient Admissions**: One record per hospital inpatient admission encounter; this object executes the logic to generate the final encounter-level properties based on the full set of documents related to the encounter collected in the aggregator object.
- **Primary Care Provider Office Visits**: One record per office visit with a primary care clinician, or in which primary care services were delivered; clinician office visits meeting any of the following criteria are considered primary care: (1) a service provider or attending provider with a qualifying primary care primary specialty; (2) a HCPCS code associated with preventive primary care services; (3) a service provider, attending provider, or provider group provider designated as a primary care provider in the Providers object.

Publicly Available Reference Data

- NPPES NPI Registry to bring in descriptive information about the PCP.
  - The NPI Registry is a free directory of all active National Provider Identifier (NPI) records. Healthcare providers acquire their unique 10-digit NPIs to identify themselves in a standard way throughout their industry.
  - Demographics (name, business, address, etc.)
  - NPPES data can be retrieved multiple ways:
    - Front end: https://npiregistry.cms.hhs.gov/
    - Full file download: https://www.cms.gov/Regulations-and-Guidance/Administrative-Simplification/NationalProvIdentStand/DataDissemination
    - API: https://npiregistry.cms.hhs.gov/registry/help-api

Tips for Success



Tips

- Be careful how you open and load this data (e.g. dropping leading zeros).
- Find more information regarding the 30-day readmission measure here.
- For assistance with health care terminology, see the included document “Health Care Jargon Dictionary”.
- Both measures share a similar structure where a denominator event is followed by a numerator event within *X* days.