# A. SQL Question

Sufferers of arthritis spend quite a bit of money to care for their disease. One meta-analysis found that patients with arthritis could spend on average between $12,000-36,000, depending on what medications they required (Hresko et al., 2018). For this reason, I was curious if patients with arthritis were readmitted. Readmission can be costly to patients and healthcare entities as some insurance companies will not pay for readmission. My research question is: What is the readmission status of patients with arthritis?

A,1. Data Identification

To answer this question, I will use the mservices.csv file which I placed in a table called "mservices" and the patient table already loaded into pgadmin4. From the mservices table, I utilized the patient_id and arthritis columns. From the patient table, I will utilize the patient_id as well as the readmis column.

The mservices.patient_id column was identified as a text, primary key, foreign key. The determination of variable character was made because the data in this column is a mix of numbers and letters. The data is also unique and should not repeat, as the patient_id should be assigned to only one patient, so it fits the primary key definition. This column is a foreign key because it is dependent on the patient.patient_id column. The patient.patient_id was identified as a text, primary key for the same reasons as the previous column. The mservices.arthritis and patient.readmis columns are text fields.

B. Entity Relationship Diagram
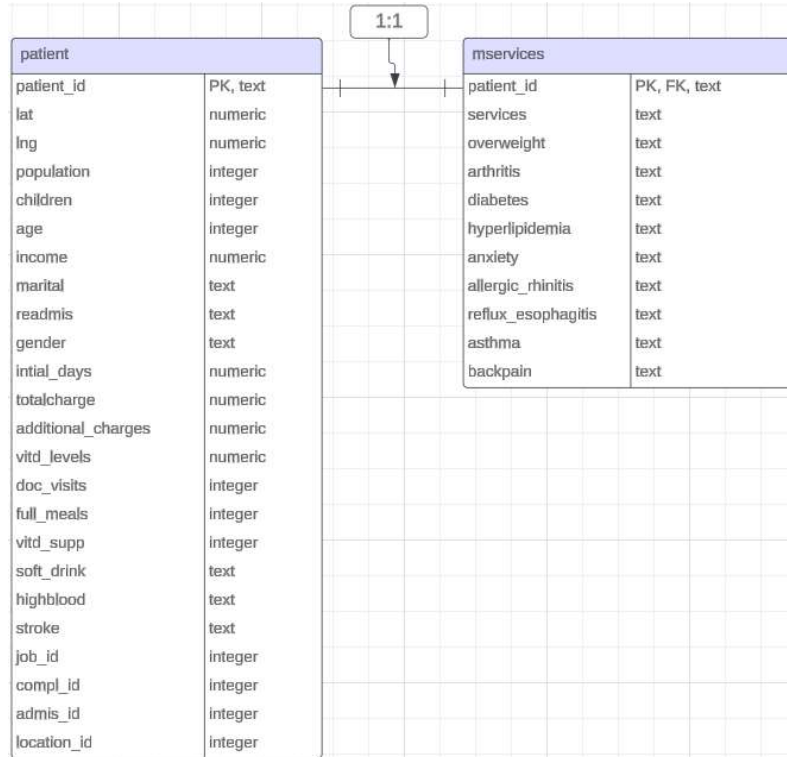
B,1. SQL code: Table based on ERD

```
CREATE TABLE public.mservices
(
        patient_id text NOT NULL,
        services text,
        overweight text,
        arthritis text,
        diabetes text,
        hyperlipidemia text,
        backpain text,
        anxiety text,
        allergic_rhinitis text,
        reflux_esophagitis text,
        asthma text,
        PRIMARY KEY (patient_id)
        CONSTRAINT fk_patient
                FOREIGN KEY(patient_id)
                REFERENCES public.mservices(patient_id)
);
```

B,2. SQL code: Loading the Data to Table from B,1

The code below utilizes code from Hashura.io.

```
COPY mservices
    FROM 'C:\LabFiles\Medical\mservices.csv' DELIMITER ',' CSV HEADER;
```

C. SQL Statement to Answer Question (see A)

```
SELECT patient.patient_id, readmis
    FROM patient
    LEFT JOIN mservices AS m
    ON patient.patient_id = m.patient_id
    WHERE arthritis = 'Yes';
```

C,1. Data file of results

Please see csv file for the results of the above SQL query. The code below is used to save

the query to a csv file (formulated utilizing the Hashura.io code from above).:

```
COPY (SELECT patient.patient_id, readmis
    FROM patient
    LEFT JOIN mservices AS m
    ON patient.patient_id = m.patient_id
    WHERE arthritis = 'Yes')
    TO 'C:\LabFiles\Medical\arthritis.csv' DELIMITER ',' CSV HEADER;
```

D. Time Period

The data in this table should be pulled daily.

D, 1. Identification of This Time Period's Significance

The query should ideally be run daily. This would allow for the identification of trends in

readmission of patients with arthritis. If patients with arthritis were being readmitted more

frequently, then steps could be taken to identify at-risk patients. If a trend in readmission is

discovered then the daily time frame allows staff to identify at-risk patients and intervene, hopefully prior to readmission.

Also, patients who were readmitted could be followed up on and the reason for readmission could be identified. A daily frequency would allow for staff to follow up with the patient that day to determine if further services were needed by the patient to prevent another readmission.   This frequency also allows staff to make changes and to see how those changes impact patient readmission. The data must be run frequently enough to identify patient readmission and to intervene in these cases. As a note, the patient table must be updated before returning the query. This is due to the foreign key in the mservices table which links back to the patient table. So, in summary, to assess readmission status among patients with arthritis, this data should be queried daily following the update of first the patient table and then the mservices table.

E. Panopto Video Recording

F. Web Sources

"Import Data from CSV into Postgres | Hasura GraphQL Docs." *Hasura.io*,

hasura.io/docs/latest/schema/postgres/postgres-guides/import-data-from-csv/. Accessed

20 Jan. 2024.

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https://campus.datacamp.com/learn/courses/introduction-to-relational-databases-in-sql

Khalil, M. (n.d.) *Data Manipulation in SQL*. datacamp.

https://app.datacamp.com/learn/courses/data-manipulation-in-sql

Sulmont, L. (n.d.) *Database Design*. datacamp.

   https://app.datacamp.com/learn/courses/database-design

Ismay, C. (n.d.) *SQL for Joining Data.* datacamp. https://app.datacamp.com/learn/courses/sql-

   for-joining-data-archived

G. Acknowledgment of Sources

Hresko, A., Lin, T.-C., & Solomon, D. H. (2018). Medical Care Costs Associated with

   Rheumatoid Arthritis in the US: A Systematic Literature Review and Meta-Analysis.

   Arthritis Care & Research, *70*(10), 1431–1438. https://doi.org/10.1002/acr.23512

H. Professionalism

This paper attempts to be professional.