Rheumatoid Arthritis in Colombia

by

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for

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What is Rheumatoid Arthritis (RA)?

Rheumatoid arthritis (RA) *is an **autoimmune disease** that can cause joint pain and damage throughout your body. **There's no cure** for RA. In addition to the **physical and emotional pain.** It is considered as a **high-cost disease.***

As someone once said,

For any country, health problems are really money problems

For a country like Colombia, where health resources are scarce, it is really important trying to understand how $$ is spent.

Physicians and Health professional interested in RA usually would like to know...

Do the costs of procedures per Person are the same across the country? Do they differ by sex, age or regime?

Does the available data has a *"good enough"* quality?

Which procedures are the most expensive or most used?

Which administrators and providers have the most expensive costs per person?

… but it isn't a secret that in Colombia Health information technology its too limited in comparison to other countries

Wouldn't be great to have a visual and interactive tool that could help Health professionals to use the available data and **Discover** the **distribution** of **Costs per Person (CP)** of **RA** procedures in Colombia by attributes like state, year, regime, sisben, sex, age group, administrator or provider?

...Let me introduce you...

An Interactive Dashboard to analyze costs of Rheumatoid Arthritis in Colombia ...

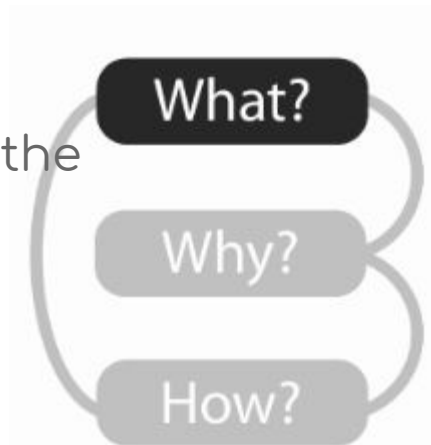Rheumatoid Arthritis in Colombia dashboard — Costs per Person analysis view

Main Dataset : SISPRO

- Administrative Database with Medical services given to patients in Colombian health system, filtered by Diagnostic codes for Rheumatoid Arthritis.
- Dataset Type: Table, Temporal
- Attributes
- States : Categorical. States of Colombia
- Year: Categorical, orderered, sequential. Year of the procedure.
- Regime : Categorical. Type of health regime to which the patient belongs

What?
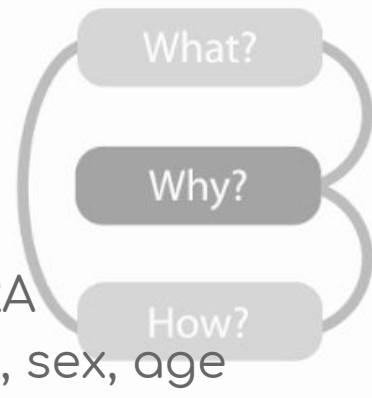
Why?

How?

Main Dataset : SISPRO

- Sisben : Categorical. Subtype of Subsidized regime.
- Sex : Categorical.
- Age Group: Categorical, ordered. Age Groups classified by human cycle.
- Administrator: Categorical. Administrators of the Social Security System
- Provider: Categorical. Company that provides a medical service.
- Procedure: Categorical. Procedures and medical services performed in Colombia
- Procedure Cost: Quantitative, ordered, sequential. Cost of a procedure applied to a patient.
- People Served : Quantitative, ordered, sequential. Number of people

What?

Why?

How?

Tasks

Main Task:

- **Discover** the **distribution** of Costs per Person (CP) of RA procedures in Colombia by state, year, regime, sisben, sex, age group, administrator and provider.

Secondary Tasks:

- **Derive** attributes from raw data as **features** to be used in the final visualization.
- **Identify Outliers** in costs.
- **Identify** the **Features** of a specific procedure in the dataset.
- **Summarize** the **distribution** of Costs per Person, people served and total costs of RA procedures in Colombia.

Demo

Insights

- There are data quality problems like these:
  - Some states do not have data for one or more years (e.g Amazonas, Arauca, Casanare, Guainía, Guaviare)
  - There are "Not Reported - NR" and "Not Available - NA", values in some of the attributes. Such kind of *"data loss"* problem should be mitigated by data publishers in order to improve the general data quality of the dataset.
  - The expert found different NIT providers with the same name.
- The overall Costs per Person (C/P) for procedures is higher for younger people.

Insights

- The overall C/P is higher for [well known](#) isolated states like Chocó, Guainía, La Guajira , Putumayo , Arauca, Vaupés and Vichada.
- For every year of the dataset Córdoba is the State with the highest C/P.
- There are anomalies in procedure costs that reflect problems during data collection (e.g. procedures with cost of $1 COP)
- According to the expert, the costs of some procedures in the database differ *a lot* from the official rates established for the country. ([SOAT DECRETO 2423 DE 1996](#)] and its yearly updates)
- There is a huge number of persons (65k) with RA that belong to the subsidized (*subsidiado*) regime. According to the expert, usually that group of people doesn't have access to the most advanced or modern procedures due to the high costs of them.
- There are more women affected with the decease, but costs for men are higher.

Thanks