**Task 5: Predictive Health Care**

Here is the background information on your task

We’ll stay in Bern for our next dataset project.

PwC is working closely with a network of doctors from Germany. The doctors are interested in finding the possible adverse effects of drugs used to treat neurological pain.

Besides treatment with usual drugs such as gapapentin or lyrica, doctors have found tramal to be a good remedy against neurological pain. If all of these have a similar effect, it would be interesting for the doctors to compare the adverse effects of tramal to gabapentin or lyrica. Depending on the patient, they could then prescribe the medication with fewer adverse effects.

The US has a central database, hosted by the FDA. The FDA Adverse Event Reporting System (FAERS) is a database that contains information on adverse event and medication error reports submitted to FDA. The database is designed to support the FDA’s post-marketing safety surveillance programme for drug and therapeutic biologic products.

Here is your task

**Jakob asks you to create a PowerPoint slide deck while tackling the following steps. Use screenshots and diagrams to illustrate your findings as well.**

**Step 1**

Create a descriptive overview of adverse effects of tramal based on the available FAERS datasets, which you’ll find in your resource section. For your analysis, only use the FAERS data from the year 2019.

Show the 10 most common adverse effects as they are reported in the FAERS database. Jakob loves bar plots, so would be great if you use one.

**Step 2**

Compare tramal to another medication called lyrica that is also commonly used to treat neurological pain. Are the adverse effects similar?

Use Rscript to solve the task and make sure using it in your presentation.

**Step 3**

Define what further investigations might be helpful in determining whether a certain drug might be more preferable over another drug. Base your solution on the results of your dataset work.

*“Hey there,*

*Thanks for being already on it. Just a hint: The FAERS dataset only contains data on a quarterly basis. You have to download all four quarters from 2019 and bind them together. To find the adverse effects (i.e. reactions) for the drug, you need to merge datasets. The documentation related to the data structure can as well be found on the FAERS website. Looking forward to your presentation.*

*See you later!”*

This experience is self-paced. But, Jakob is expected to send the presentation to the team in 1.5 hours and needs your slides and analyses. We recommend you spend no more than that completing this task.

**By the way: Here’s some important info about PwC and health:**

* [AI and Robotics are transforming healthcare](https://www.pwc.com/gx/en/industries/healthcare/publications/ai-robotics-new-health/transforming-healthcare.html)
* [Personalised health solutions](https://www.pwc.ch/en/services/digital/data-analytics/personalised-healthcare-solutions.html)

You want to learn more? Level up by listening to a portion (or all!) of our podcasts linked below and read our blog posts. The AI study in the resource section gives you further insights you about AI to help you completing the task.

**Podcasts**

* [Emerging health ecosystems](https://www.pwc.com/us/en/industries/health-industries/health-research-institute/next-in-health-podcast/health-ecosystems.html)
* [How will digital transformation and resiliency shape the U.S. health industry?](https://www.pwc.com/us/en/industries/health-industries/health-research-institute/next-in-health-podcast/digital-capabilities-reshape-us-health-industry.html)
* [Strategy& Insider podcast "Future of Health"](https://www.strategyand.pwc.com/gx/en/about/media/insider-podcast.html)