

Identifying Association Rules Between Symptoms in VAERS

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We can investigate symptom clusters in VAERS by seeing how often symptom B occurs when symptom A occurs. When symptom B accompanies symptom A with a high degree of confidence, we call this an association rule.

Dataset

For each VAERS record there are 5 symptoms listed. I looked at 600,000 records for the year 2021 USA data. The file is too big to upload, but you can access 2021 data from the VAERS website or the Way-back Machine.

Method

I used a datamining technique called Association Rule Mining. It looked at every instance where symptom A occurred at least 1.5 in 10000 times, and then provided the probability (confidence) that symptom B would also occur. The minimum confidence level was set to 0.2

```
association_rules = apriori(baskets, min_support=0.00015, min_confidence=0.2, min_lift=3, min_length=2)
association_results = list(association_rules)
```

Results

1. Association Rules :

Using this process I identified 1618 association rules. These can be viewed in a CSV file attached. <https://howbad.info/sym-vaccines-vaers.csv>

Amongst these rules I found that –

40% of the reports of myocarditis also report troponin increase and chest pain. So myocarditis may be asymptomatic as regards chest pain – and not everyone who has myocarditis therefore carries out a troponin test. Given the possible asymptomatic nature of this condition, it is therefore recommended that every vaccinated person has a troponin test.

2. Frequency of Symptoms :

High on the frequency list were pain, fever, headache and nausea – these were not localised to the injection site, but seemed systemic.

Worryingly, arthralgia also occurred with very high frequency - suggesting the possibility of an auto-immune attack against joints. COVID-19 also occurred with very high frequency – and it would therefore be an error to call these “break-through cases”, since they are a primary symptom of the vaccine rather than an occasional or rare one.

Chills	42071
Arthralgia	31523
Dizziness	25467
COVID-19	19564
Fatigue	18771

Top 5 symptoms for “Symptom 1”

Repeating the analysis with different parameters

The following parameters were used

```
association_rules = apriori(baskets, min_support=0.0001, min_confidence=0.2, min_lift=2, min_length=2)
association_results = list(association_rules)
```

Results

1. Association Rules :

I had simply lowered the support parameter to 0.0001 so as to pick up rarer events. This resulted in the generation of 3542 association rules. The CSV is available here – <https://howbad.info/sym3.csv>

The Association Rules applying to exposure to the vaccine during pregnancy are shown below –

Sym 1	Sym 2	Support	Confid	Lift
Exposure during pregnancy	Delivery	0.000133	0.808081	185.4105
Exposure during pregnancy	Foetal death	0.00011	0.785714	180.2786
Exposure during pregnancy	Caesarean section	0.000108	0.747126	171.4248
Maternal exposure during pregnancy	Glucose tolerance test	0.000113	0.660194	425.9317
Exposure during pregnancy	Abortion spontaneous	0.000878	0.557672	127.9553
Maternal exposure during pregnancy	Pregnancy test	0.000467	0.301075	367.9128

This indicates that in the reported incidents of adverse events, there is high confidence of foetal death (78%) and spontaneous abortion (56%) following exposure to the vaccine during pregnancy.

It follows that mothers should avoid any vaccination for COVID-19 during pregnancy, and avoid any vaccination before conception if they wish to protect the child.

2. Frequency of Symptoms :

Here are the 30 most common symptoms following COVID-19 Vaccination based on a pool of 600,000 records.

('Headache', 91057),	Pain in extremities is associated with thrombosis and clotting
('Fatigue', 79010),	
('Chills', 74749),	
('Dizziness', 56591),	Arthralgia is a symptom of arthritis suggesting a potential auto-immune effect
('Pain', 48486),	
('Pyrexia', 46911),	
('Pain in extremity', 38103),	Covid-19 is a prominent symptom suggesting the inefficacy of the vaccine
('Nausea', 37064),	
('Arthralgia', 35154),	
('Dyspnoea', 28452),	Rash is a symptom associated with Herpes Zoster, that occurred with high frequency in Pfizer's own study.
('Injection site pain', 28048),	
('COVID-19', 25291),	
('Myalgia', 24284),	Chest Pain is associated with myocarditis and cardiac arrest
('Rash', 24027),	
('Asthenia', 23939),	
('Pruritus', 22715),	
('Injection site erythema', 22205),	Hypoaesthesia is numbness, especially in the extremities - associated with blood loss caused by micro-clotting
('Erythema', 18489),	
('Diarrhoea', 18161),	
('Chest pain', 16923),	
('Injection site swelling', 15926),	
('Cough', 15712),	
('Feeling abnormal', 15350),	
('Injection site pruritus', 14971),	
('Hyperhidrosis', 14684),	
('Hypoaesthesia', 14602),	
('Lymphadenopathy', 14111),	
('SARS-CoV-2 test positive', 12719),	
('Blood test', 12620),	
('Urticaria', 12585)]	