Frequentist Methods For Determining Pharmaceutical Risk

Volume 04a: of a Reference Manual for Improving Healthcare Through State and Local Action, Based on the Covid-19 Experience

Abstract

This is a tutorial on the primary class of methods, called frequentist methods, used by public health or epidemiology for estimating a quantitative value of risk, at a population level, of a pharmaceutical. This class of methods relies on simple algebraic formulas rather than statistical calculus. The risk metric becomes a "safety signals" if the value passes some limit.

Four example calculation exercises are summarized using the m1ΨmRNA countermeasure data from VAERS. The first is a PRR calculation using the VAERS database, but only for Pfizer, containing data up to March 31, 2021. This represents only a short time interval in which the m1ΨmRNA countermeasure was being administered (December, 2020 – March 31, 2021), especially considering the added risk factors associated with multiple boosters. However, just in those data there are **358** safety signals from the medDRA Preferred Terms level of the dictionary.

The CDC is mandated to perform PRR analysis on all vaccines from the time a vaccine is released. However, as documented in this tutorial, the first PRR analysis was not released until August, 2022, 19 months after the m1ΨmRNA countermeasure's release. The second exercise is a summary of the analyses, which showed **770** safety signals. What fraction of the public, or the medical community for that matter, was aware of this level of concern?

The third exercise is a PRD analyses by age and sex on all VAERS data up to mid-January 2023. The data are presented in graph format. The total number of safety signals was not given, and the number of graphs is too numerous to count.

The fourth exercise is of South Carolina data pulled from the VAERS database. PRR and Chi-Square analyses of safety signals are performed. **147** safety signals are found at the second level of the medDRA tree for data through November, 2023.

I am requesting that the legislators review these analyses. If the analyses in this review are not sufficient to move the PPLS to significant action, then more analyses can be performed.

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I would also like to thank **Albert Benavides** for his valuable advice and tutorials. His substack is welcometheeagle, https://welcometheeagle.substack.com and his website is https://vaersaware.com.

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1 Definitions

1.1 Adverse Effects and Adverse Events

Adverse Effects that are recorded in a database are called "unanticipated adverse drug reactions," or ADRs in most of the literature. With respect to the public health discipline, the common term for the data is "safety data." For vaccines, the databases have different names, with VAERS (Vaccine Adverse Event Reporting System) being the most well-known.

I personally make a distinction between adverse effects and the term "adverse events". I consider an adverse effect as a symptom; an adverse event is a diagnosis. The distinction isn't as clear in practice.

1.2 Safety Signal

I prefer the European Medicines Agency definition of "safety signal."

> *Information on a new or known adverse event that is potentially caused by a medicine and that warrants further investigation. Signals are generated from several sources such as spontaneous reports, clinical studies and the scientific literature.*

That gives an idea of what a safety signal is, but it begs the question about how to measure it. First, though, any one that writes about Safety Signal must stipulate that a safety signal only raises a flag that there might be a problem. It should kick off a procedure of generating a hypothesis, collecting data, accumulating everything a set of experts know: creating knowledge, to the point where a "causality assessment" can be performed. If that assessment leads to a change in the benefit-risk of a medicine, then the protocol says the organization responsible for the benefit-risk must report it as a significant safety issue and propose actions to take or provide a justification for why actions will not be taken.

1.3 ICD Codes

Healthcare patient record databases record symptoms, diagnoses, and treatments using a coding system called ICD, or International Coding of Diseases. The website where all the codes are defined is https://icd10data.com . The "10" stands for the version of the specification. By my nomenclature, an adverse effect is a ICD code for a symptom, an adverse event is a code for a diagnosis.

1.4 MedDRA

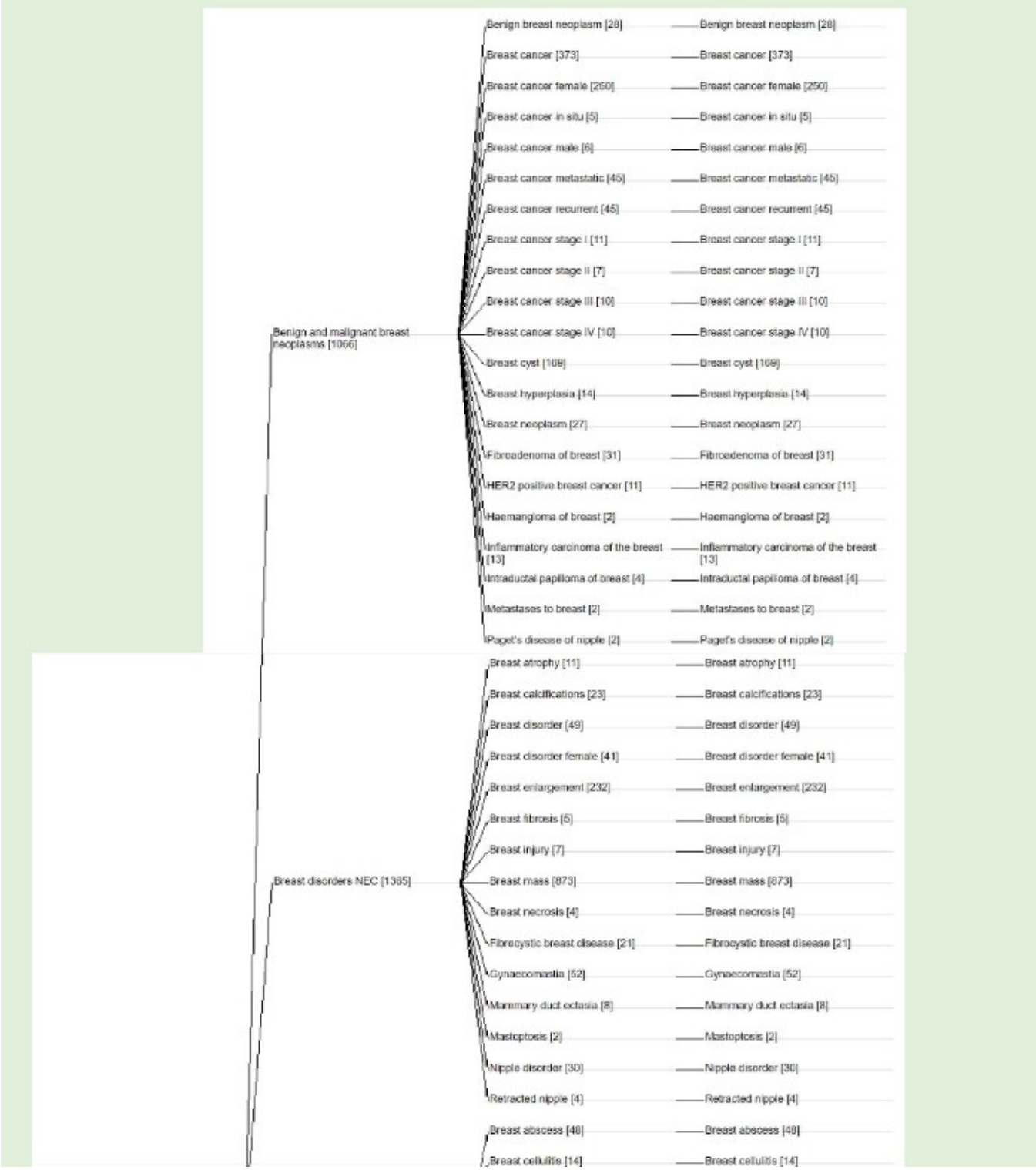
The Frequentist methodology relies on a list of medical terms for symptoms. They can be symptoms of disease or just measurements-test results or diagnostics. The generic term for these is "disorders." In the US, and South Carolina in particular, the dictionary of such terms is

called ICD-10[1] Our hospitals are run, both clinically and financially, based on ICD-10 codes. There are many web sites that provide lists of the codes, one of the best being https://icd10data.com . An alternative site, where the "11" version is now being documented, is https://www.who.int/standards/classifications/classification-of-diseases

An alternative dictionary for medical use, actually starting out for pharmaceutical use, is MedDRA, Medical Dictionary for Regulatory Activities. This is used internationally as an ICD-10 alternative.[2] It provides a hierarchy of medical terminology. There are tens of thousands of entries. The primary website for MedDRA is https://meddra.org The organization provides a browser to view the entire hierarchy, displayed as a tree at https://www.meddra.org/browsers . There are web versions and versions for different devices. You need to register an email and password to gain access, but access to any really useful information, such as the map from ICD codes to MedDRA terms, is fee-based, with some exceptions. To get an idea of the tree structure, here is a snapshot for a portion of "Reproductive system and "breast disorders.Breast disorders."

[1] ICD = International Classification of Diseases. The "10" historically has represented the revision level of the dictionary. However, there have been so many revisions of the dictionary without changing the number that it seems to be just part of the name now, even though ICD-11 has been released

[2] A map between ICD-10 codes and MedDRA disorders can be found on the medDRA.org site, but an account is required to obtain it.



There is a map between ICD coding and the MedDRA dictionary available from the MedDRA website. However, a userid and password are required.

1.5 Pharmacovigilance

The science of analyzing these ADRs is called pharmacovigilance or drug safety surveillance; the common term is safety analysis.

Given ICD codes, the methodology of pharmacovigilance is:

Detection: Detect data that might indicate an adverse effect (aka signal detection)

Assessment: Assess whether or not the data show an adverse effect, and that adverse effect is not within the bounds of what was expected (aka "signal assessment)

Understand: Understand the cause of a "serious signal"

Prevention: Establish a corrective action plan to eliminate the "serious signal"

Of course, this is a simplistic protocol, but it is enough for our purpose: that is to describe methods for signal detection and assessment in typical use for databases like VAERS.

The Australian drugs regulator provides more detail:

> *In terms of monitoring and collecting safety information, your pharmacovigilance system should allow you to:*
>
> - *identify and collect all information related to the safety of your medicine from all possible sources, including*
> - *spontaneous reports of adverse reactions (including consumer reports to you, or to people who work for you or have a contractual relationship with you)*
> - *internet and social media reports*
> - *reports from non-medical sources*
> - *solicited reports, such as from post-registration studies or post-market initiatives*
> - *reports in international and local literature*
> - *individual adverse drug reaction reports in the TGA's Database of Adverse Event Notifications (DAEN)…*
>
> *If you verify a signal that may change the benefit–risk balance of a medicine, you **MUST** report it to us as a significant safety issue together with any actions you propose to take, or justification for no further action.*

I assume by now you know that the neither the Federal government nor the CDC followed this protocol.

1.6 Risk

In human terms, risk can be the analog psychological feeling you get that something “bad” will happen in the process of a person doing something. It is your heart rate plus how much you sweat, plus your anxiety, etc. Risk is almost always time-dependent, in that the feeling of risk goes up and down as the person actually does that something.

But, as scientists, we have to quantify that concept. One way to quantify it is to use a machine similar to a lie detector, that tracks your sweatiness, your heart rate, and whatever else can be measured, as a function of time and to have the machine report on all those measurements. Perhaps there is even a way to “read your mind.”

Mathematically, there is a generic definition for risk. It is expressed very generically as the probability of an event occurring times the probability of the loss associated with that event (the loss function) Much of the time this is simplified to just the loss function: pick the event with the lowest loss.

1.7 RCT

RCT is the acronym for Randomized Control Trial.

> *RCTs are prospective studies that measure the effectiveness of interventions. Although no study is likely on its own to prove causality, randomisation reduces bias and provides a rigorous tool to examine cause–effect relationships between an intervention and outcome. This is because the act of randomisation in a large study balances participant characteristics (both observed and unobserved) between the groups, allowing attribution of any differences in outcome to the intervention. This is not possible with any other study design, so RCTs are considered the reference standard for driving practice (Tarnow-Mordi et al., BJOG 2017;124:613).*
>
> *In designing an RCT, researchers must carefully select the participants, the interventions to be compared and the outcomes of interest (Lane BJOG 2018;125:1057; Lane BJOG 2018; 125:1504). Once these are defined, the number of participants needed to obtain reliable results is calculated (power calculation). All RCTs should have pre-specified outcomes, and should be prospectively registered with a clinical trials database to avoid selective reporting (Prior et al., BJOG 2017;124:1008–15). With appropriate ethical approvals in place, participants are then recruited and randomly assigned to either the intervention or the comparator group. It is important to ensure that at the time of recruitment there is no prior knowledge of the group to which the participant will be allocated. This is known as concealment and can be implemented using, for example, computer-generated randomisation systems. Following randomisation, RCTs can be blinded if feasible so that the participants, doctors and nurses as well as researchers do not know what treatment each participant is receiving, further minimising bias. In addition to trial registration, a full trial protocol documents full details of all trial processes before commencement (Lane BJOG 2018; 125:1504).*
>
> *Results of RCTs should usually be produced by intention-to-treat analysis (participants analysed in the groups to which they were randomised), as other variations, e.g. per protocol analyses*

(only participants who completed the treatment originally allocated are analysed) are often regarded as being biased when determining effectiveness.

RCTs can have drawbacks, e.g. loss to follow up and missing data can threaten the validity of intention-to-treat analyses. Additionally, problems with generalisability can arise if participants that volunteer to participate are not similar to patients for whom RCT results will be used in the future. Expense is another criticism of RCTs, but this should be balanced against practice without RCTs, which may be even more costly.

Randomised controlled trials – the gold standard for effectiveness research, Eduardo Hariton, Joseph J Locascio, 2018, https://doi.org/10.1111/1471-0528.15199

This figure is a good summary:

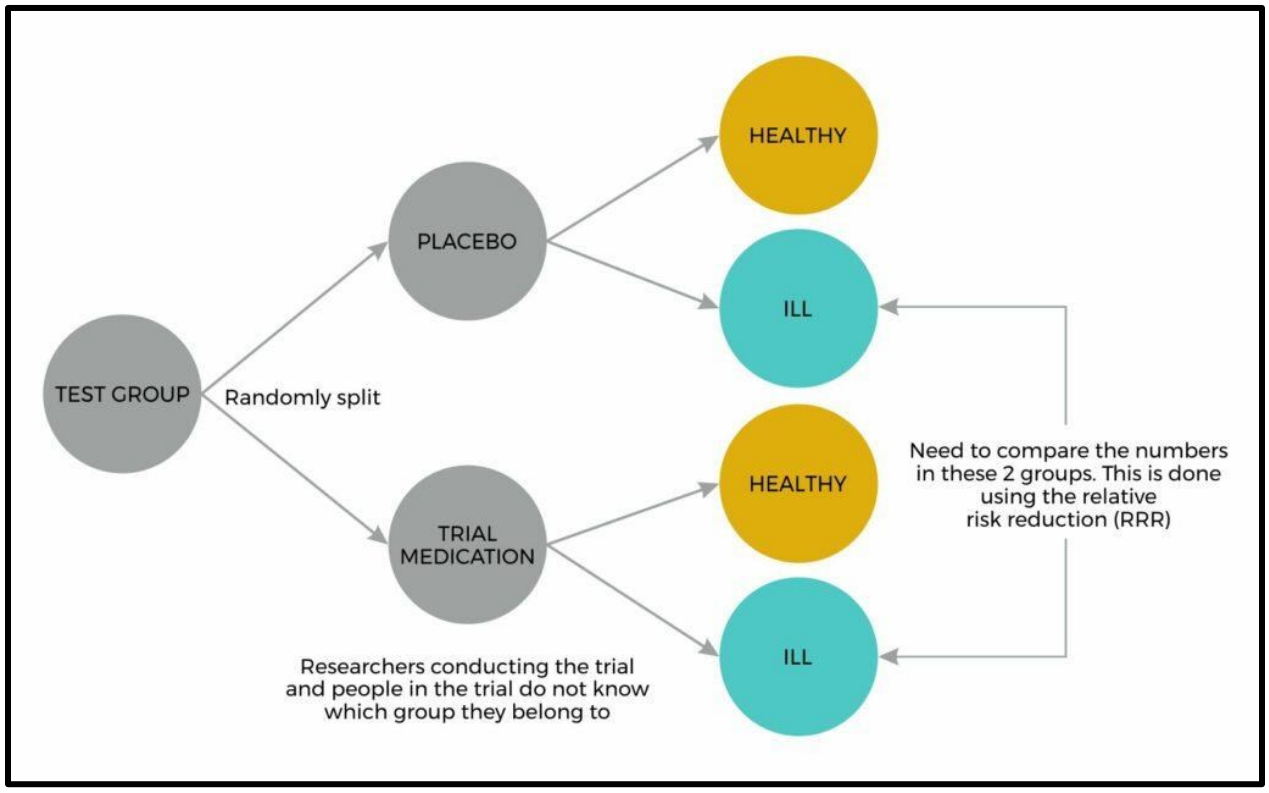


Figure 1. A model of a RCT experiment. [1]

It does contain a term that will be defined in the next section: RRR.

1.8 Confidence Interval (CI)

The following is from [2]:

Confidence intervals (CIs) aim to give you an idea of how confident you can be about a study's estimate of a treatment's effects. Even when a study is of impeccable quality, the results may have happened by chance. Statisticians deal with this uncertainly by doing some nifty calculations to determine how confident one can be about the results, which give us the confidence interval.

The narrower the range, the more precise the study's estimates, and the more confident you can be that it is a 'real' finding and not due to chance.

This is usually expressed in terms of a 95 per cent confidence interval (95%CI), which represents the range of results within which we can be 95 per cent certain that the true answer lies.

As an illustration of how confidence intervals can help, imagine that you are doing a study investigating whether there is gender bias in the method used by a university to choose its students. If there were no such bias you would expect 50 per cent of its students to be men and 50 per cent to be women. Supposing that you check a small sample, say 10 students, and found 4 of them were men. How sure can you be that this is a true reflection of the student population? Statistical calculations show that you can be 95 per cent certain that the true quota of men in the entire university population is somewhere between 12 and 74 per cent. This is an unhelpfully wide range.

But supposing you randomly sample 100 students and find that 40 are men. Statistical calculations show that you can be 95 per cent certain that the true quota of men in the entire university population is somewhere between 30 and 50 per cent – a narrower range.

Imagine also that you randomly examined a large sample of 1000 students, of whom 400 were men. The 95%CI would be from 37 per cent to 43 per cent – a much narrower range showing a very high level of confidence that this represents a true reflection of the gender ratio in the university.

In the sample of 10 students, finding four men is compatible with our expected value for society at large – 50 per cent males and 50 per cent females. In the group of 1000 students finding that only 40 per cent are men is not expected. The result from this large sample is statistically significant, which means that the disparity between the observed 40 per cent and the expected 50 per cent is real – that is, it is very unlikely to have arisen by chance. In the sample of 100 students, the upper end of the confidence interval is just on the expected value of 50 per cent and therefore just statistically significant.

The same principle applies to studies investigating treatments, except that we might be looking at the relative risks of a poor outcome in the group receiving the intervention compared with the control group.

2 Frequentist Methodology

2.1 Introduction

The Frequentist Methodologies are algebraic computations that combine both detection with some form of assessment in one calculation. In general, the higher the calculated number, the higher the cause for concern for the safety of the event. (This is stated in various texts in these lofty words: "the corresponding drug-event combination is called disproportionally present in the database if the number of instances of an AE associated with the drug is larger than a baseline or expected value computed as if the drug or event occur independently."

All of the methods we will discuss depend on at least theoretically creating the following table for each drug/AE combination (If there are 20 drugs and 1000 codes, that would be 20,000 such tables)

Counts Of reports	**With drug i**	**Without drug i**	**Total**
With AE j	n_{ij}=a	b	a+b
Without AE j	c	d	c+d
Total	a+c	b+d	a+b+c+d

There is another entire collection of methodologies that use statistics, producing distribution functions, sometimes means, and standard deviations as outputs. The majority of these, and the most accurate and revealing, are those that use Bayesian methods. That's the topic for another tutorial

2.2 The Proportional Reporting Ratio (PRR or just RR)

This combination compares the drug appears associated with an AEj with the number of times all the other drugs, but not the one in question, appear with the AEj.

The fraction **a/(a+c)** is the value used for the number of times the drug appears associated with the AEj. That is divided by a fraction **b/(b+d),** the value used for the number of times the other drugs appear associated with the AE j:

RR = [a/(a+c)]/[b/(b+d)]

This could be confusing unless you understand that the denominator is across ALL other drug entries. So, the fraction is a kind of rough estimate of the average number of occurrences of AEj being associated with an drug. A number greater than 1 suggests that the drug I has a higher risk of the AE than the other drugs. (This may or may not be true, of course, since this is an average.)

PRR values are usually computed with chi squared analyses of the above table

2.3 The Relative Reporting Ratio (RRR)

This combination computes an expected value of AEj occurring and drug i occurring, which would be the product of the two numbers.

The expected value of AEj occurring can be estimated by determining the ratio of AE occurring either with or without the drug I, which is **(a+b)/(a+b+c+d)**. The expected value of drug j occurring would be **(a+c)/(a+b+c+d**). "Anding" the two is multiplying the two. Taking the ratio of AEj occurring and drug j occurring, which is a, to this product, gives the actual measured number of AEj occurring and drug j occurring to the expected value of the same:

RRR = [a/(a+b)]/[(a=c)/(a+b+c+d)]

2.4 Absolute Risk Reduction (ARR)

The most obvious comparison of treatment effectiveness is to compare whether or not those who got a treatment had a larger number of occurrences of the "disease" (or whatever) than the those who didn't get the treatment. Usually this is done in a controlled situation, where the only difference between the two groups is whether or not they got the treatment. We have to point out here that the outcome has to be defined. Is the criterion just "whether or not they got the disease" or "whether or not they got a serious form of the disease?" So, to make things clear (as mud) we will stipulate that the criteria is whether or not the treatment was effective, and leave the definition of effective to be declared along with providing this metric. So the metric is

AFF = b-a where

b = percent of people in the group who didn't get the treatment and had the disease

a = percent of people in the group who did get the treatment and had the disease. –

Weaknesses of these analyses

This is a off the top of our heads list of some of the weakness of these analyses:

The RRR can give a wildly inaccurate evaluation of risk when the numbers of affected persons is small and the outcome is just whether or not a treatment was effective, not whether the treatment was compared to an adverse effect.

Adverse effects other than the binary "had the disease" vs "didn't have the disease" may not be considered in the discussion. All adverse effects need to be incorporated into the risk discussion. Early in trials or even early when first released, the adverse effects may not be evident. (Or they may just be ignored by the pharma.)

Frequentist Methods

To illustrate these points, we copy an excellent discussion by Dr. Ivan Iriarte and Phoenix (Iriarte & Phoenix, 2021). In the discussions that follows they are referring to the randomized control trials (RCT) performed by Pfizer-BioNTech as part of the ΨmRNA FDA qualification.

The RCT method was applied to the Pfizer-BioNTech vaccine trials. The investigators randomly assigned 21,720 subjects 16 years and older to receive two doses of the new vaccine, and 21,728 subjects to receive two doses of placebo. They followed the subjects for a median of two months after the intervention.

It is also important to take into account the trial design itself. In this case Pfizer designed the trial, and they are highly experienced in setting up trials for success. The trial compared the case numbers in the vaccinated vs control (placebo) groups where a case of COVID-19 was defined as an individual who experienced symptoms and had a positive test for SARS-CoV-2 infection. This is arguably a weak endpoint, as incidence of severe disease and death, the very outcomes one would hope the vaccine prevents, were not considered. Other data was collected, including the incidence of serious side effects.

The trial reported eight cases of COVID-19 (as defined above) among the immunized group and 162 in the placebo group. So, the risk of COVID-19 in the immunized group was 8/21,720 = 0.037%, and the risk in the unimmunized group was 162/21,728 = 0.745%. The ARR is defined simply as the difference in risk between the two groups. In this case it would be = 0.745% – 0.037% = 0.708%; we will round it to 0.7%. The RRR is the ARR expressed as a percentage of the absolute risk of disease in the unvaccinated. In this case, it is = 0.708/0.745 = 95%. This RRR is what is reported (this is standard practice) as the “efficacy” of the vaccine.

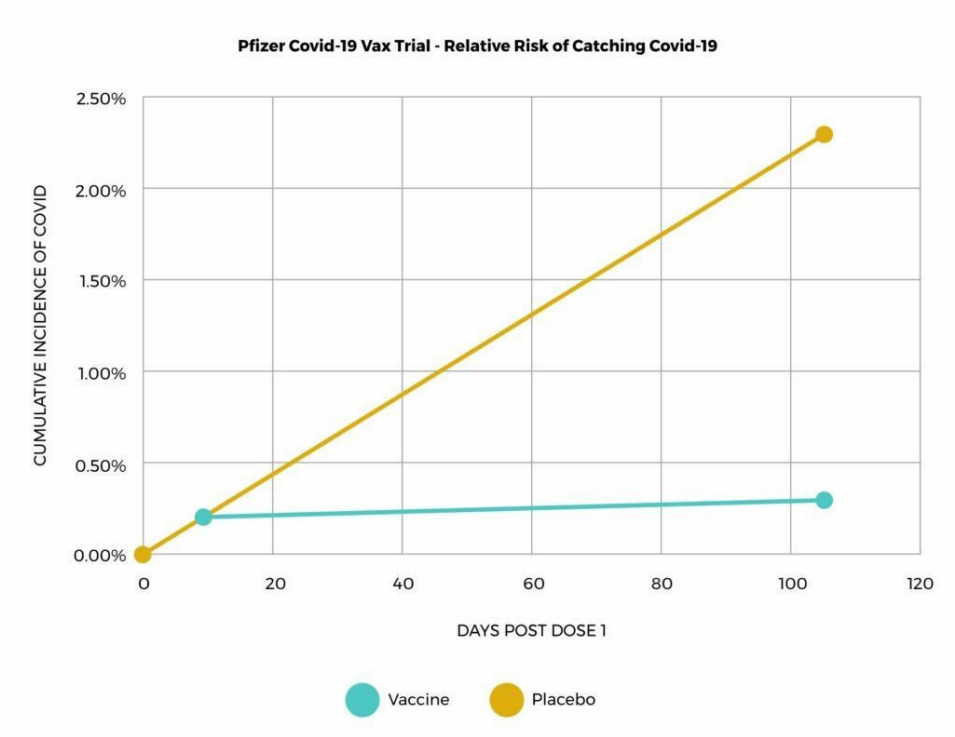
The vaccine appeared to reduce the relative risk of COVID-19 (as defined by Pfizer) by an estimated 95% over the short duration of the trial, but the interpretation of that number is not that simple. It’s nearly impossible to extrapolate the potential real world benefit from such a limited trial design.

Firstly, we must understand the role of statistics here. If you toss a coin 10 times you would expect to get 50% heads and 50% tails on average. In practice, however, it would not be too surprising to obtain 7 heads and 3 tails in any 10 tosses of the coin. There are similar considerations that apply to any medical trial. Although the headline figure here is a 95% relative risk reduction, how confident are we that this figure is close to the truth? If we had run the trial at another time, might we have only recorded a value of 90% for the RRR? So any quoted reduction must also come with some indication of how “good” that number is. While the Pfizer trail had 40000+ participants, relatively few were infected with COVID, leaving the conclusions to be based on small numbers.

In order to determine if the administration of the vaccine to the population is really beneficial, we also need to consider the actual risk of disease in those who did not receive the intervention. To illustrate with an exaggerated example, if the risk of acquiring a disease is only one in a million, reducing it by half, to one in 2 million is not a big deal. If, however, the risk of

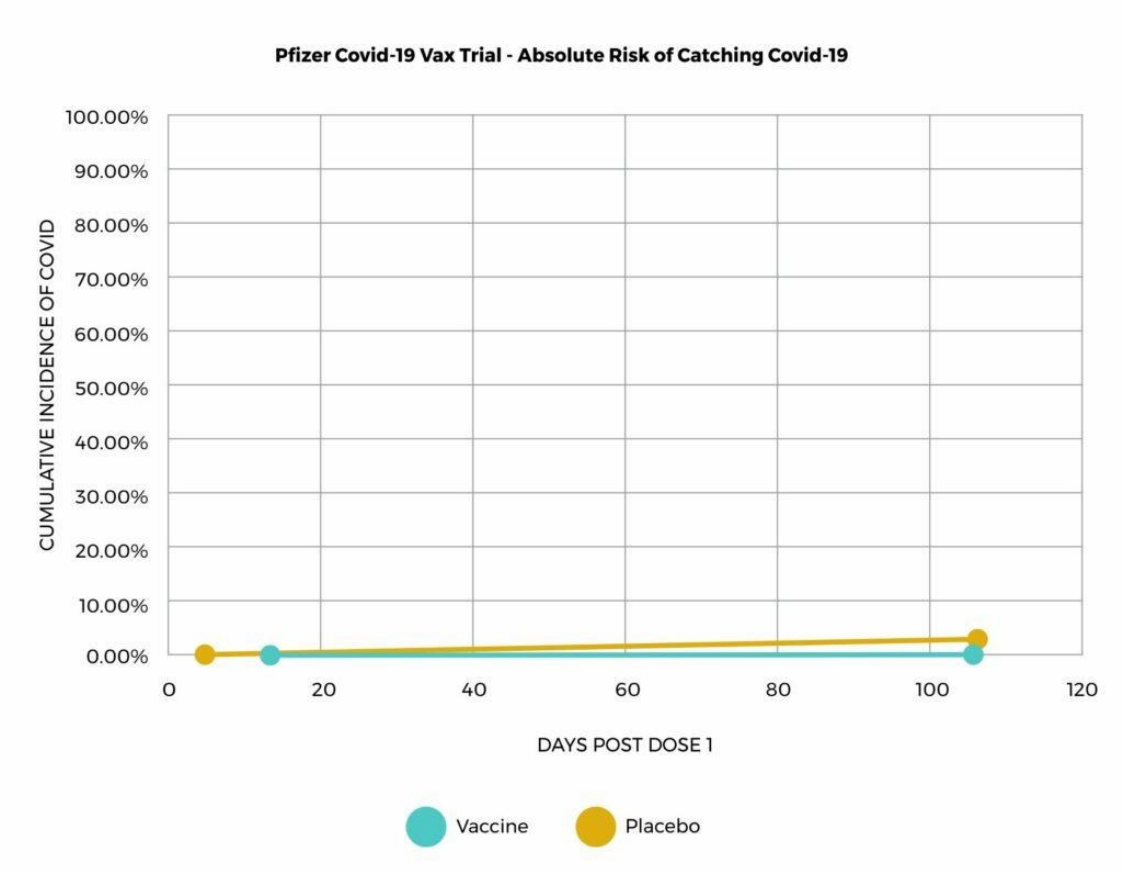
acquiring a disease is 30%, reducing the risk to 15% is very significant. If our proposed experimental treatment caused side effect deaths at a rate of one in a million we would be hesitant to recommend it in the above example, but we would be much more likely to recommend it for the latter.

The Pfizer study includes a figure that compares the cumulative number of vaccinated patients that became ill versus the cumulative number of placebo patients that became ill. The graph looks similar to this:



This appears to be an impressive result, as there are more cases in the placebo group RELATIVE to the vaccinated group. But note the Y axis only goes to 2.5% – so that in total 2.3% of placebo patients became ill versus .3% of vaccinated patients. If we look at the

ABSOLUTE RISK of each group, the results look far less impressive:



Is the benefit worth the cost?

This is the same question we asked in the rubberized lightning suit example above. It is the more difficult subjective question of whether our proposed measure is worth it. In the case of a serious disease like Covid19 this is a complex question because whilst we want to save lives, we also recognize that the vaccines, like all medical interventions, are not free from serious side effects. Even though only a small percentage suffer such effects, we must weigh this against the fact that we are also dealing with mostly small percentages of people (depending on personal risk factors) who die from COVID-19. The ARR and RRR are both important parameters that help us in addressing these complex issues

This illustrates why considering the ARR may be helpful. In the Pfizer clinical trial mentioned above, the risk of COVID-19 = 0.75%; so, reducing this risk by 95% does not seem like a very impressive effect. But the issue becomes even more complex to interpret. Within the clinical trial, different subgroups of people have different risks of getting COVID-19. Furthermore, different age groups have vastly differing risks of mortality from COVID-19. We cannot simply assume that a relative risk reduction of 95% applies uniformly across all age ranges from the trial data without further age stratification of the results. In general, younger people have massively lower risks from COVID-19, so the ARR is tiny in those groups. In addition, the risk of getting the disease in different sectors of the population, and in different geographical locations, may also be different.

There is a final important point to consider relative to trial design and reported outcomes. Whilst it is important to determine whether the vaccines are effective at reducing infection, it is equally important to know whether they improve health outcomes overall – is the benefit sufficient to justify the potential risk? For example, in the vaccine trial discussed above, there were 262 serious adverse events noted in the vaccinated group and 172 serious adverse events noted in the placebo group (which admittedly seems odd as one wouldn't expect a saline injection to produce any adverse events). Given that, for the vast majority, COVID-19 is not a serious illness , adverse events arising during the trials should also factor into our decision about overall suitability of the proposed measure.

The logical conclusion is that the RRR and ARR of an intervention (in this case a vaccine) reported in a RCT should be interpreted carefully when making decisions about the desirability of implementing the intervention in the general population. It is not sound public health practice to say: "This vaccine is 95% effective, so let's give it to everyone". The decisions to implement interventions in the population should use results of a RCT as valuable information, but should also take into account many factors such as the actual risk of getting COVID-19 in different populations (geographical locations, different ages, other medical conditions…), the probability of getting sick with COVID-19 during different seasons, and the probability of adverse events following vaccination among others.

2.5 Proportional Reporting Difference (PRD)

PRD is a computation method developed by Fabian Spieker to fulfill a need recognized by the CDC but never either performed or published:

> *On January 29th of 2021 the CDC released a document titled 'Vaccine Adverse Event Reporting System (VAERS) Standard Operating Procedures for COVID-19' (for official use only) which announced the CDC's intention:*
>
> *"CDC will perform Proportional Reporting Ratio (PRR) analysis [...], excluding laboratory results, to identify AEs that are disproportionately reported relative to other AEs. [...] To determine if results need further clinical review, consider if clinically important, unexpected findings, seriousness, specific syndrome or diagnosis rather than non-specific symptoms"(CDC, 2022-09-26)*

Spieker describes the difference between a PRR and a PRD analysis

> *A PRR analysis is very similar to a PRD analysis as the name suggests. Let me give you an idea of the differences between the two concepts:*
>
> ***PRR**: Proportional Reporting Ratio*
>
> - *Ranges from 0 to Infinity*
> - *Represents the ratio at which the proportion in question is increased or decreased compared to it's proportion in a reference group of reports for other medications*

- *The PRR contains no information about the size of the 2 proportions in the two groups that are being compared. Proportions of 10/100 and 1/100 respectively will result in a ratio of 10, the same way that proportions of 10/1000 and 1/1000 will result in a ratio of 10.*

***PRD**: Proportional Reporting Difference*

- *Ranges from -1 to 1*
- *If larger than 0 it represents the excess proportion compared to the proportion of occurence in a reference group of reports for other medications*
- *The PRD retains quantitative information which hints at how commonly a side effect occurs. Proportions of 10/100 and 1/100 will result in a difference of 9%, while proportions of 10/1000 and 1/1000 will result in a difference of 0.9%, which suggests that the concept of scenario 1 occurs more frequently than the concept in scenario 2 (and/or it's occurence is more likely to be reported than the occurence of scenario 2).*

Both methods generate nearly the exact same signals, depending on the method used for calculating the respective confidence intervals, but they will be ranked differently. PRD supplies information that is more useful for doctors and patients since it indicates how frequently a side effect occurs while PRR is more suitable for aiding regulatory agencies an pharmaceutical companies in detecting novel safety signals.

The procedure Spieker uses to compute the PRD is as follows.

1. Calculate ratios and differences of a concept's proportional occurrence for each study/control pair.

   For now, we are only interested in the ratios or more specifically we are only interested in the lower bound of the 50% confidence intervals of what we estimate the incidence proportion ratios to be. If this lower bound is larger than 1 for any given descriptor, we will use its inverse square root to adjust this descriptor's vaccine -, age - and gender - group specific weight. This process will be repeated twice.

To get a point-estimate of incidence proportion ratio *rp* for every medical concept, we use the following formula:

$$\hat{rp} = \frac{p_s}{p_c} = \frac{x_s}{n_s} : \frac{x_c}{n_c}$$

where:

$\hat{rp}$ is our point-estimate of the descriptor's incidence proportion ratio and:

- n_s is the total number of reports in the study cohort
- x_s is the number of reports mentioning the descriptor in the study cohort
- p_s is the portion of reports mentioning the descriptor in the study cohort

and:

- n_c is the total number of reports in the control cohort
- x_c is the number of reports mentioning the descriptor in the control cohort
- p_c is the portion of reports mentioning the descriptor in the control cohort

In order to find the lower bound of the 50% confidence interval in which we suspect the incidence proportion ratio to reside, we first calculate the confidence interval for the natural logarithm of our incidence proportion ratio's point-estimate:

$$CI[\ln(\hat{rp})] = \ln(\hat{rp}) \pm z * \sqrt{\frac{n_s - x_s}{n_s * x_s} + \frac{n_c - x_c}{n_c * x_c}}$$

where z=0.67449 for the a confidence interval of 50%. The antilog of the lower confidence level is the lower bound of the 50% confidence interval of our incidence proportion ratio.

In other words: We are 75% confident, that the incidence proportion for this combination of...

- age group
- gender group
- medical descriptor

for patients who received this type of vaccine product differs compared to it's incidence proportion in patients of the same age and gender group who received other types of products by a factor of at least:

$$CL_{0.25}(rp) = e^{\ln(\hat{rp}) - 0.67449 * \sqrt{\frac{n_s - x_s}{n_s * x_s} + \frac{n_c - x_c}{n_c * x_c}}}$$

We then calculate the weight ***w*** with the formula:

$$w = \sqrt{\frac{1}{\max(1, CL_{0.25}(rp))}}$$

All reports belonging to control cohorts have weights applied to all the medical concepts listed inside them, according to the respective terms' weights for the received vaccine product types and the patient age and gender group.

This process is repeated twice to attenuate the effect by which multiple vaccines mutually lower each other's proportional reporting differences for the same descriptor if the respective proportional reporting ratios are increased in the same type of patient category.

2. Calculating point-estimates and bounds of confidence

In order to yield proportional differences, we do something very similar to what we just did when adjusting the control groups, only this time we are interested in the point-estimate of the difference in incidence proportions between study and control, not in the ratios.

$$\hat{\Delta p} = \frac{p_s}{p_c} = \frac{x_s}{n_s} - \frac{x_c}{n_c}$$

where:

$\hat{\Delta p}$ is our point-estimate of the descriptor's difference in incidence proportions

and:

- n_s is the total number of reports in the study cohort
- x_s is the number of reports mentioning the descriptor in the study cohort
- p_s is the portion of reports mentioning the descriptor in the study cohort

and:

- n_c is the total number of reports in the control cohort
- x_c is the number of reports mentioning the descriptor in the control cohort
- p_c is the portion of reports mentioning the descriptor in the control cohort

In order to calculate the bounds of our confidence interval we use the following formula by J. Haldane:

$$CI[\Delta p] = \theta^* p \pm w$$ [3]

where:

$$\theta^* p = \frac{p_s - p_c + z^2 v * (1 - 2\psi)}{1 + z^2 u}$$

$$w = \frac{z}{1 + z^2 u} * \sqrt{u\{4\psi(1-\psi) - \hat{\Delta p}^2\} + 2v(1-2\psi) * \Delta p + 4z^2u^2(1-\psi)\psi + z^2v^2(1-2\psi)^2}$$

$$\psi = (p_s + p_c)/2$$

$$u = (\frac{1}{n_s} + \frac{1}{n_c})/4$$

$$v = (\frac{1}{n_s} - \frac{1}{n_c})/4$$

We will set a significance level of 0.005 in step 7 which means:

$$z = 2.576$$

[3] CI can be confusing. The I is an upper case i.

What remains for us to do is filling in the values and calculating the result. This yields 3 values for every comparison:

- The upper bound of the incidence proportion difference's 99% confidence interval
- The point-estimate of our incidence proportion difference
- The lower bound of the incidence proportion difference's 99% confidence interval

If the lower bound is larger than zero, it will result in a **safety signal** for the respective medical concept in this age, gender and vaccine product group.

3. Calculating point-estimates and appropriate significance levels for safety signal detection

The point estimate calculation is defined in the previous two steps. Dr. Spieker recommends the following to establish the appropriate significance levels for safety signal detection:

> *If the lower bound of the 99% confidence level for our proportional difference ($CL_{0.005}$) is greater than zero, a hit is generated.*
>
> *I picked the confidence interval by making sure some relatively rare signals that had already been established in literature (e.g. Narcolepsy for Influenza A) remained intact while raising the requirement for inclusion in order to exclude more false positive.*
>
> *Increasing the confidence interval to 99.9% would put our lower confidence level at 0.0005. This would eliminate about 12.6% of signals of which I expect roughly 90% to be valid. In order not to miss out on too many signals, a cutoff at less than 99.5% confidence instead seems adequate which would put our confidence interval at 99% and our significance level at 0.005.*
>
> *So what this means is: For each resulting hit we are at least 99.5% confident that it is based on an actual increase in incidence proportion difference ($p < 0.005$).*

2.6 Chi-Square Analysis

The Chi-Square Analysis, a semi-statistical metric, technically called a non-parametric statistic because it doesn't assume a distribution for the data being evaluated, is often coupled with one of the methods above is called the Chi-Square test. An intuitive explanation of the computation is that it measures the distance between values in one set of data, the expected values, and the measured values. It gives one number for the entire comparison. That value is always positive because the square of the distance is used in the computation.

There is always a statement associated with chi-squared analysis, called the null hypothesis. There is another statement, called the alternative hypothesis, that is contrary to the null hypothesis. The Chi-Squared analyses available on web sites that use VAERS as the data source use the MedDRA dictionary. Some analyses, such as the one available on https://medalerts.org , allow selection of the level up the tree in MedDRA desired. Others default to some level, such as the bottom, or first branch level, called the SOC Symptom level.

Frequentist Methods

The null hypothesis and alternative hypothesis for Chi Squared analysis at the SOC level for a typical report is:

The null hypothesis is that there is no statistical significant signal for that event- usually an SOC Symptom- for that vaccine based on a p level of x in the VAERS database. The alternative hypothesis is that there is a statistically significant signal for that event for that vaccine based on the p level of x in the VAERS database

The computations involved in establishing an Chi-Square metric are based on this model of VAERS database entries:

SOC Symptom	Has accine, Has event	Has accine, Not event	Not Vaccine, Has event	Not vaccine, Not Event	Chi-square
A symptom	A	B	C	D	result

And the calculations are:

Chi-square mathematics:

EA = (A+B)*(A+C) / (A+B+C+D)
EB = (A+B)*(B+D) / (A+B+C+D)
EC = (C+D)*(A+C) / (A+B+C+D)
ED = (C+D)*(B+D) / (A+B+C+D)
CA = $(A-EA)^2$ / EA
CB = $(B-EB)^2$ / EB
CC = $(C-EC)^2$ / EC
CD = $(D-ED)^2$ / ED
Chi-square = CA+CB+CC+CD

The Chi-square value in the above calculation is used to obtain a value in a chi-square table based on the value and the degrees of freedom value that represents the “degree” to which the null hypothesis is false.

Examples will follow.

3 Frequentist Results

3.1 Some History

Before introducing some actual results related to the m1ΨmRNA countermeasure, here is some background. It is selected passages of an article by Ramesh Thakur, published on April 18, 2023 on the Brownstone Institute website: https://brownstone.org/articles/what-is-safety-signal-why-does-it-matter/

> *In this article I want to look specifically at the concept of "safety signals" because I don't believe the significance of this concept in medical science and public health interventions is widely understood in the general public.*
>
> *I first became interested in this after watching Dr Peter McCullough in a TV interview with France Soir in June 2021. He pointed out that the CDC's Vaccine Adverse Events Reporting System (VAERS) normally records about 25 deaths per year from all vaccines. During the Covid pandemic, by 11 June 2021 it had verified 5,993 deaths, 20,737 hospitalizations, 47,837 urgent care visits, 1,538 anaphylaxis cases, and 1,868 cases of Bell's palsy.*
>
> *Because VAERS is a passive-surveillance system, he said, the general consensus is that the numbers are vastly underreported. He warned that this is "a major safety signal … that has exceeded all boundaries of acceptability." Quizzed on the causal link to vaccines, he answered: "it's biologically plausible, temporally associated, internally consistent month by month" and also "externally consistent" with data from the US, Europe and England. "The vaccine is in the causal pathway to death … The majority of these 6,000 Americans, they were healthy enough to walk into a vaccine center and within 2-4 days they're dead."*
>
> *That was almost two years ago.*
>
> *Without reprising ground that has been extensively covered in the dissenting literature already and is now reaching a broader and more receptive audience, let us recall the following. The original trial data of the manufacturers has been extensively analyzed to point to shortcomings, failures, refusal to publish the full raw data for independent cross-verification, allegations of fraudulent practices, and the deployment of the vaccine-sympathetic number of relative risk reduction while ignoring and downplaying the more vaccine-skeptical numbers of absolute risk reduction and the number needed to vaccinate in order to prevent one hospitalization, ICU admission and death.*
>
> *Regulators and authorities have proven to be just as determined to ignore the massive surge in the number of serious adverse events being reported as critics have been persistent in pointing to this as a critical safety signal that warrants further investigation and follow-up action. The phenomenon of fit and apparently healthy young athletes collapsing with alarming suddenness and frequency has provided visually powerful evidence of the possible harms from the vaccines.*
>
> *The surge in miscarriages and fertility problems alongside the fall in birth rates nine months following vaccine rollouts is also being documented with increasing frequency and has the potential, Frijters, Foster and Baker argue, to rouse the slumbering public to righteous anger and calls for criminal accountability.*

Dr. Thakur describes the Hear No Harm, Speak No Harm, See No Harm approach of all levels of authority associated with Covid-19 management. Then he says:

> *This raises some important questions. Was the mantra of "See No Harm, Hear No Harm, Speak No Harm" the result of:*
>
> 1. *Regulatory capture by Big Pharma?*
> 2. *Callous apathy, indifference and negligence by the regulators, public health institutions and medical establishments?*
> 3. *Staggeringly gross incompetence?*
> 4. *All of the above?*
> 5. *Most importantly, which ones of the above do not cross the threshold of criminality? What should be done about the reality that in refusing to be responsive to safety signals, the guardians and watchdogs of public health failed to discharge the solemn responsibility that had been entrusted to them?*
>
> *On 28 March WHO experts published a revised road map on vaccine strategies. In a sign they may be awakening to the risk of cross-vaccine hesitancy because of disillusionment with Covid vaccines, the guidance acknowledges: "The public health impact of vaccinating healthy children and adolescents is comparatively much lower than the established benefits of traditional essential vaccines for children."*
>
> *My final question is to the public health clerisy. If you become transparent on efficacy, investigate safety signals urgently and fully and publish the findings honestly: In the long run, will your credibility worsen, or will you begin to regain public trust and confidence?*

Frequentist methods, which are the common methods used to obtain safety signals, is the first step in the Safety Signal methodology. All the software and data exist, as you can see from visiting several different websites, including CDC websites, public health and private websites from most every country around the world, such as https://pervaers.com and https://medalerts.org

3.2 PRR Results Available Before March 31, 2021

3.2.1 Introduction

In this section is a summary of the results reported by Fabian Spieker in a substack article with the title **Ignored Safety Signals**, Dec. 16, 2023. All the results use the PRR method.

> The reason these data are important is because the analysis is on data submitted before March 31, 2021. This means that the public health authorities should have seen enough safety signals by that date to stop use of the product until all the results had been analyzed. **These signals are the ones that could have been identified very early on, before the damage was done.** Ignoring these might be considered criminal malfeasance.

One other point that needs to be made. Countries around the world have databases similar to VAERS. The methodology and nomenclature in those databases, as well as the data in them varies, starting with the language, but including different classification conventions. Furthermore, countries differ widely in the data's fidelity. Dr. Spieker gives one example showing the difference between two countries that speak the same language, Germany and Austria:

Country	Total reports (n)	Reports mentioning 'COVID-19' (x)	Percentage (p)
AT	102,915	92,706	90.1%
DE	63,794	2,563	4.0%

Was Germany that less impacted by Covid-19 AEs? Nope. As Dr. Spieker says: "*It seems like the **German Paul-Ehrlich-Institut** actively filters out reports of vaccination failures, while the Austrian BASG / AGES does no such thing*."

3.2.2 Some Data Pre-Processing Details

Spieker downloads the data from VAERS and then does some unique preprocessing: He explains:

> *A lot of VAERS entries specify no patient age, despite the patient age being mentioned in the SYMPTOM_TEXT fields of the files ending with 'DATA.csv'. I therefore run a regular expression search on all DATA files in order to fill in the missing age fields.*
>
> *The fields BIRTH_DEFECT, DIED, DISABLE, HOSPITAL, L_THREAT, (NOT) RECOVD are OR'ed into the medical descriptors in the SYMPTOMS files.*
>
> *Gary Hawkins has done some excellent work building a list of known batch codes and matching them to mistypes instances. This helps me assign the correct batch codes to about 70000 US reports. You can read more about his work on his substack.*
>
> *When this pre-processing is not performed, a substantial number of records used in an analysis are incomplete or completely left out of the analysis.*
>
> *Each report is assigned to a number of study and control groups, according to the types of vaccines received by the patient.*
>
> *The data of all groups is then stratified into 30 groups each, defined by an age range [0+, 0-4, 5-11, 12-18, 19-24, 25-34, 35-44, 45-59, 60-79, 80+] and the patient gender [M, F, MF].*
>
> *In the next step, a weight between 0.0 and 1.0 is assigned to each age-gender combination ([M\|F]+[0...119]) in the control group in order for both study and control group to share the same internal age and gender structure.*

The weights are determined by dividing the fraction of individuals belonging to a specific age-gender combination in the study cohort by the fraction of individuals with the same combination of age and gender in the control cohort.

The result consists of 30 study and 30 control cohorts for every product type we are interested in. Each cohort contains a number of distinct adverse event reports, each of which is made up by a list of medical descriptors, patient age and gender and in the case of the control cohort an age and gender specific weight, as well as a list of vaccines that had been administered before the report was created.

Beginning Dr. Spieker's PRR analysis of the VAERS data to March 31, 2021. These are his words, with a few contributions and changes in wording by me to improve understanding for those not familiar with PRR analysis. Dr. Spieker has approved the changes

3.2.3 Summary

In this article I am presenting retrospective safety signals based on proportional reporting ratios among spontaneous reports in this article, utilizing only reports that were processed by March 31st, 2021.

There are four important early signal clusters emerging from spontaneous reports:

1. ***Cardiac** signals made up of arrythmias and concepts surrounding heart attacks*
2. ***Cerebrovascular** signals, both haemorrhagic and ischemic*
3. *With 4 affected nerves, non-vascular neurological signals are almost exclusively related to **cranial nerve dysfunction***
4. *Reproductive system disorders centered around **menstruation***

***Population-level data** shows that proportions of decedents who had diagnoses for **cerebrovascular disease, acute myocardial infarction or lung embolisms were either peaking** in 2021 and 2022 or - in the case of acute myocardial infarction - diverging upwards from the downward trend prior to COVID.*

*While cardiac complications of COVID vaccination have been well-described in scientific literature, this is not the case for neuroinflammatory and hypercoagulative disorders. Except for Bell's palsy cranial nerve dysfunction **after COVID vaccination has received little attention from the scientific community.***

3.2.4 Introduction

Some of you will be familiar with my safety signal website pervaers.com. It offers a nearly complete list of age-adjusted safety signals for all vaccine types by antigen based on "proportional reporting differences" to proportions among reference report cohorts, giving patients and clinicians an idea of how common certain vaccine adverse events are.

This analysis uses only the U.S. VAERS signals and present the most important signals to you, starting with past signals for Pfizer from March 2021, using an old version of the database.[4] *It should be clear that there are all the countries in the world that didn't enter data into the VAERS database that should be analyzed. Analysts in some countries have performed PRR analysis on their data, but that would make a very long document indeed. This is a sample to give the reader an idea of what has been going on.*

These signals are the ones that could have been identified very early on, before the damage was done.

As already mentioned, I limited this analysis to Pfizer reports (excluding all SARS-CoV-2 infection reports).

We will also look at population-level data to see if any of the signals are reflected in mortality.

3.2.5 Methodology Summary

- *For each analysis, all reports are first split into 2 groups:*
  - *A study report cohort. In this case we will be using reports processed as of March 2021, submitted in response to adverse events occurring after administration of COVID vaccines by Pfizer*
  - *A control report cohort, containing all remaining reports that were submitted in response to adverse events occurring after administration of non-COVID vaccines*
- *For the age-adjusted analysis, age adjustment of the two cohorts is performed (but we are just looking at crude signals for this example computation).*
- *The occurrences of each medical event in both cohorts are counted.*
- *The number of occurrences is then divided by the number of reports in that cohort, yielding "report proportions."*
- *The ratio of report proportions between the two cohorts is the "proportional reporting ratio". When an event is significantly ($p<0.1$) overrepresented, a signal is generated.*

3.2.6 Population-level data

- *Monthly (2015-2017) and weekly (2018-2022) data were joined by converting each to pseudo-daily data. Think of this as data with monthly precision with a little extra granularity.*
- *Proportions of one mortality type among another type are calculated.*
- *2015-2019 serves as reference timeframe for calculation of excess proportions, which are calculated by taking the difference between the expected and actual proportion.*

---

[4] The VAERS databases have been "tampered" with by the CDC since the data started showing significant adverse events. This makes the data more suspicious and inaccurate with the passage from 2021 to the present. Fortunately, one analyst has stored a complete copy of VAERS every week since it became evident that something unique was happening with the Covid data. Therefore, Dr. Spieker and others can go to this analyst's repository and retrieve a true copy of VAERS for any timeframe. This emphasizes the need for every state to create its own equivalent of VAERS free of Federal Government manipulation.

3.2.7 Downloads

A complete analysis was done for different sample strategies. These are contained in the zip file you can download at this link: All Signals, 24 files in total:

- *by product (Pfizer, Moderna, Johnson, any COVID vaccine)*
- *by snapshot time (March 2021, January 2023)*
- *by method (crude, age-adjusted, pseudo-placebo reference)*

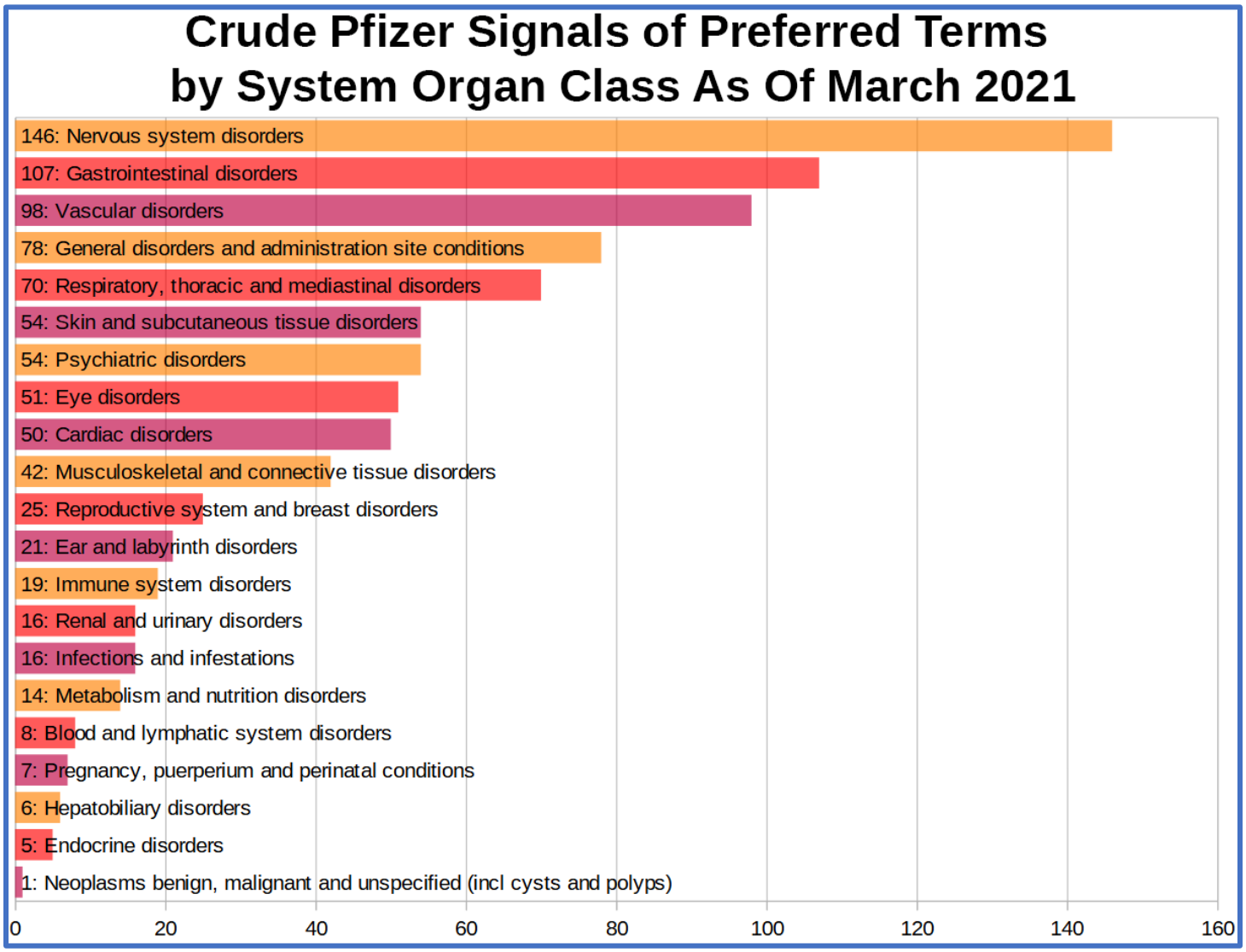
Only the strongest signals and the ones considered most important are presented in this example.

We will only be looking at crude signals. Age-adjusted ones and those utilizing pseudo-placebo reference cohorts can be found in the download package and are mostly in the same ballpark, but have wider confidence intervals due to the uncertainty introduced by age-adjustment.

3.2.8 Results

***SOC** stands for System Organ Class, the highest level of hierarchy in the MedDRA system.(See Section 1.4). To give you an idea how early signals were distributed across these top-level categories, I will present a chart representing the number of lowest hierarchy levels signals - Preferred Terms in each SOC.*

*There were **358 unique signals for** Preferred Terms as of March 2021 among Pfizer reports. Some of these exist in multiple SOCs. For example, "taste disorder" is present in both nervos system and gastrointestinal disorders.*



Keep in mind that these are very early signals. The distribution changed profoundly throughout the course of the vaccination campaign. Especially the number of cancer signals increased massively later on.

3.2.9 PRRs by SOC

Now for a more detailed look at the Pfizer signals, I will group them into SOCs as long as there are enough important signals in a category. Note that each term is linked to a detailed description of the diagnosis.

The analysis is presented in the Appendix 5.1.

3.2.10 Conclusion

There are four important signal clusters emerging from spontaneous reports:

1. *Cardiac signals made up of arrythmias and concepts surrounding heart attacks*
2. *Cerebrovascular signals, both haemorrhagic and ischemic*
3. *With 4 affected nerves, non-vascular neurological signals are almost exclusively related to cranial nerve dysfunction*
4. *Reproductive system disorders centered around menstruation*
5. *Population-level data shows that proportions of decedents who had diagnoses for cerebrovascular disease, acute myocardial infarction or lung embolisms were either peaking in 2021 and 2022 or - in the case of acute myocardial infarction - diverging upwards from the previous downward trend.*

While cardiac signals have been well-described in scientific literature, this is not the case for neuroinflammatory disorders. Cranial nerve dysfunction has received little attention from the scientific community. {From "Ignored Safety Signals," dated Dec 16, 2023.

3.3 First PRR Results Released by the CDC August, 2022

The next example analysis in time sequence is the one released by the CDC in August, 2022. You would think, since safety is a major job for the CDC, that CDC would be publishing safety signals from the moment the "vaccines" were EUA released to the public. They didn't. Let Josh Guetzkow explain[5]:

Finally! Zachary Stieber at the Epoch Times managed to get the CDC to release the results of its VAERS safety signal monitoring for COVID-19 vaccines, and they paint a very alarming picture (see his reporting and the data files here, or if that is behind a paywall then here). The analyses cover VAERS reports for mRNA COVID vaccines from the period from the vaccine rollout on December 14, 2020 through to the end of July, 2022. The CDC admitted to only having started its safety signal analysis on March 25, 2022 (coincidentally 3 days after a lawyer at Children's Health Defense wrote to them reminding them about our FOIA request for it).

Like me, you might be wondering why the CDC waited over 15 months before doing its first safety signal analysis of VAERS, despite having said in a document posted to its website that it would begin in early 2021—especially since VAERS is touted as our early warning vaccine safety system. You might also wonder how they could insist all the while that the COVID-19 vaccines are being subjected to the most rigorous safety monitoring the world has ever known.

Back in June 2022, the CDC replied to a Freedom of Information Act (FOIA) request for the safety signal monitoring of the Vaccine Adverse Events Reporting System (VAERS)—the one it had said it was going to do weekly beginning in early 2021. Their response was: we never did it. Then a little later they said they had been doing it from early on. But by August, 2022, they had finally

[5] Guetzkow, Josh; "***CDC Finally Released Its VAERS Safety Monitoring, Analyses for Covid Vaccines via FOIA***"; https://researchrebel.substack.com/p/cdc-finally-released-its-vaers-safety, January, 3, 2023.

gotten their story straight, saying that they actually did do it, but only from March 25, 2022 through end of July.

The analysis they were supposed to do uses what's called proportional reporting ratios (PRRs).

The Epoch Times obtained 3 weeks of safety signal analyses from the CDC for VAERS data updated on July 15, 22 and 29, 2022. Here I will focus on the last one, since there is very little difference between them and it is more complete. The safety signal analysis compares adverse events[1] reported to VAERS for mRNA COVID-19 vaccines from Dec. 14, 2020 through July 29, 2022 to reports for all non-COVID vaccines from Jan 1, 2009 through July 29, 2022.

PRRs are calculated separately for 5-11 year-olds, 12-15 year-olds and 18+ separately. For each age group, there are separate tables for AEs from all reports, AEs from reports marked serious and AEs from reports not marked as serious.[2] Recall that a serious report is one that involves death, a life-threatening event, new or prolonged hospitalization, disability or permanent damage, or a congenital anomaly. I will focus on the reports for all AE's.

They also have a table that calculates PRRs by comparing reports for the Pfizer COVID-19 vaccine to reports for the Moderna vaccine and vice versa, again for all reports, serious reports only and non-serious reports. There were no remarkable findings in those tables, so I will not discuss them. [Edit: I forgot what Norman Fenton noted in his analysis: the overall proportion of reports with serious adverse events is 9.6% for Modern compared to 12.6% for Pfizer.] This isn't that surprising since both vaccines are very similar and so should present relatively similar adverse events when compared to each other, and any differences are likely not large enough to be picked up by a PRR analysis. [Though the difference in the overall rate of serious adverse events, which are not specific to a particular type of event only how serious it is, was significant.]

The CDC seems to have calculated PRRs for every different type of adverse event reported for all the COVID vaccines examined - though it's possible they only analyzed a subset. What seems clear is that, among the AEs they examined, the only ones included in the tables satisfy at least one of two conditions: a PRR value of at least 2 and a Chi-square value of at least 4 (Chi is the Greek letter χ and is pronounced like 'kai'). When both conditions were met, they highlighted the adverse event in yellow, which appears to indicate a safety signal. There were no COVID vaccine AEs listed with fewer than 3 reported events, though for non-COVID vaccines there were many AEs listed that had only 1 or 2 reported since 2009. The CDC tables still include these and highlight them in yellow when the PRR is greater than 2 and the Chi-square value is great than 4, indicating these events are counted as safety signals.

We are told that the existence of a safety signal doesn't necessarily mean the AE is caused by the vaccine, and I accept that premise. But the current practice seems to be to ignore safety signals, dismiss them as noise without any evidence, and stall any investigation into them as long as possible. The precautionary principle, however, dictates we should presume that a safety signal indicates causality, until proven otherwise. Since, it has been acknowledged that the mRNA COVID vaccines can cause myocarditis and pericarditis (often referred to as myo-pericarditis), we can take those AEs as a kind of benchmark, and propose that, at minimum, any AE with a signal of equal or greater size should be considered potentially causal and investigated more thoroughly.[4]

After dropping the new COVID-era AEs, there are 503 AEs with PRRs larger than myocarditis (PRR=3.09) and 552 with PRRs larger than pericarditis (PRR=2.82).[5] ***This means that 66.4% of***

the AEs had a bigger safety signal than myocarditis and 77.3% were larger than pericarditis. *You can see what those were by use this Excel file provided by the CDC and sorting the 18+ tab by the 12/14-07/29 PRR column (Column E). Then just look at which AEs have PRRs larger than the ones for pericarditis and myocarditis.*

For 12-17 year-olds, there is 1 safety signal larger than myocarditis (it's 'troponin increased') and 14 safety signals larger than pericarditis (excluding myocarditis), which include: mitral valve incompetence, bell's palsy, heavy menstrual bleeding, genital ulceration, vaccine breakthrough infection, and a range of indicators of cardiac abnormalities.

For 5-11 year-olds, the comparison to myo/pericarditis is less germane, as they seem to suffer less from this side effect. But we can still make the comparison: there are 7 safety signals larger than pericarditis, including bell's palsy, left ventricular dysfunction, mitral valve incompetence, and 'drug ineffective' (presumably meaning they still got COVID). There are 16 safety signals larger than myocarditis (excluding pericarditis), which in addition to those listed above also include: pericardial effusion, diastolic blood pressure increase, tricuspid valve incompetence, and vitiligo. Sinus tachycardia (high heart rate), appendicitis, and menstrual disorder come in just below myocarditis.

Now if we think of a safety signal as having both strength and clarity, then the PRR can be thought of as an indicator of how strong the signal is, while the Chi-square is a measure of how clear or unambiguous the signal is, because it gives us a sense of how likely the signal is due to chance alone: the larger the Chi-square value, the less likely the signal is due to chance. A Chi-square of 4 means there is only a 5% chance the observed signal is due to chance. A Chi-square of 8 means there is only a 0.5% chance of it being due to chance.[6]

For the 18+ group, there are 57 AEs with a Chi-square larger than myocarditis (Chi-square=303.8) and 68 with a Chi-square larger than pericarditis (Chi-square=229.5). Again, you can see what these are by going the Excel file linked above and sorting on Column D.

For the 12-17 group, there are 4 AEs with a larger Chi-square than myocarditis (Chi-square=681.5) and 6 larger than pericarditis (Chi-square=175.4).

For the 5-11 group, there are 22 AEs with a Chi-square larger than myocarditis (Chi-square=30.42) and 34 AEs with a Chi-square larger than pericarditis (Chi-square=18.86).

The Epoch Times article quotes my esteemed colleague and friend, Norman Fenton, Professor of Risk Management and world renowned expert in Bayesian statistical analysis: "from a Bayesian perspective, the probability that the true rate of the AE of the COVID-19 vaccines is not higher than that of the non-COVID-19 vaccines is essentially zero…. The onus is on the regulators to come up with some other causal explanation for this difference if they wish to claim that the probability a COVID vaccine AE results in death is not significantly higher than that of other vaccines." (See his post on the CDC analysis here.) The same is true for all the safety signals they found.

The CDC's VAERS SOP analysis document lists 18 Adverse Events of Special Interest says they are going to pay close attention to. In their 2021 JAMA paper (and similar presentations to ACIP), the researchers responsible for analyzing the millions of medical records in the CDC's Vaccine Safety Datalink (VSD) using the 'Rapid Cycle Analysis' only studied 23 outcomes. A Similar analysis in NEJM from Israeli researchers focused on only 25 outcomes. Compare this to over

700 safety signals found by the CDC when they finally decided to look—and that's not even counting all the adverse events that have never been reported for other vaccines so cannot ever show a safety signal by definition. How can the CDC say that these safety signals are meaningless if almost none of them have been studied any further? And yet we are assured that these vaccines have undergone the most intensive safety monitoring effort in history. It's complete and utter hogwash!

To summarize the CDC Results:

- *CDC's VAERS safety signal analysis based on reports from Dec. 14, 2020 – July 29, 2022 for mRNA COVID-19 vaccines shows clear safety signals for death and a range of highly concerning thrombo-embolic, cardiac, neurological, hemorrhagic, hematological, immune-system and menstrual adverse events (AEs) among U.S. adults.*
- *There were 770 different types of adverse events that showed safety signals in ages 18+, of which over 500 (or 2/3) had a larger safety signal than myocarditis/pericarditis.*
- *The CDC analysis shows that the number of serious adverse events reported in less than two years for mRNA COVID-19 vaccines is 5.5 times larger than all serious reports for vaccines given to adults in the US since 2009 (~73,000 vs. ~13,000).*
- *Twice as many mRNA COVID-19 vaccine reports were classified as serious compared to all other vaccines given to adults (11% vs. 5.5%). This meets the CDC definition of a safety signal.*
- *There are 96 safety signals for 12-17 year-olds, which include: myocarditis, pericarditis, Bell's Palsy, genital ulcerations, high blood pressure and heartrate, menstrual irregularities, cardiac valve incompetencies, pulmonary embolism, cardiac arrhythmias, thromboses, pericardial and pleural effusion, appendicitis and perforated appendix, immune thrombocytopenia, chest pain, increased troponin levels, being in intensive care, and having anticoagulant therapy.*
- *There are 66 safety signals for 5-11 year-olds, which include: myocarditis, pericarditis, ventricular dysfunction and cardiac valve incompetencies, pericardial and pleural effusion, chest pain, appendicitis & appendectomies, Kawasaki's disease, menstrual irregularities, vitiligo, and vaccine breakthrough infection.*
- *The safety signals cannot be dismissed as due to "stimulated," exaggerated, fraudulent or otherwise artificially inflated reporting, nor can they be dismissed due to the huge number of COVID vaccines administered. There are several reasons why, but the simplest one is this: the safety signal analysis does not depend on the number of reports, but whether or not some AEs are reported at a higher rate for these vaccines than for other non-COVID vaccines. Other reasons are discussed in the full post below.*
- *In August, 2022, the CDC told the Epoch Times that the results of their safety signal analysis "were generally consistent with EB [Empirical Bayesian] data mining [conducted by the FDA], revealing no additional unexpected safety signals." So either the FDA's data mining was consistent with the CDC's method—meaning they "generally" found the same large number of highly alarming safety signals—or the signals they did find were expected. Or they were lying. We may never know because the FDA has refused to release their data mining results.*

3.4 PRD Results By Age mid-January, 2023

https://pervaers.com provides PRD results by age group for various adverse event classes. These data cover through mid-January 2023. Any result above 0 is a safety signal that should have been processed according the safety signal protocol.

The results are provided as Appendix A.

In most cases below, three graphs are presented for each AE: male, combined, female. The reason is that the results between male and female was, to the eye, significant. (For example, all cause death data is showing that males are overrepresented in excess mortality.[6])

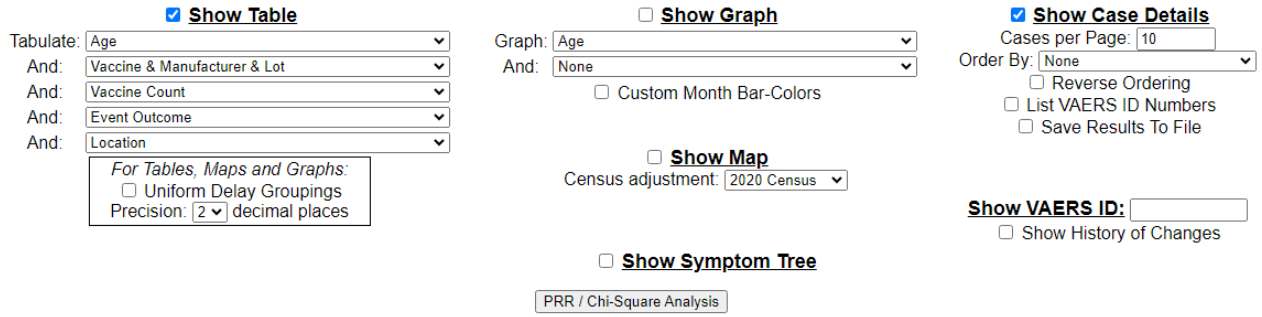
Only a sample of the results are given. Visit the web site for all of them… all 300 + Safety Signals.

Browse through these results. How many of these signals do you think led to more serious conditions over time? Signals can be a warning that, even after the fact, might be successfully treated.

The above is a sample of the safety signals seen in VAERS data up to January, 2023. Attached is the complete list of positive safety signals.

3.5 PRR and Chi-Square Analysis of VAERS Data from South Carolina to November, 2023

This is the interface at https://medalerts.org for obtaining a PRR/Chi-Square analysis. This shows a selection for the state of South Carolina.



[6] See Volume 6a of this series: *Methods for Establishing the Number of Deaths from Covid-19 Vaccination, with Sample Results*

PRR (Proportional Reporting Ratio) / Chi-Square Analysis

PRR / Chi-square analysis examines a vaccine and an event outcome to see if the vaccine has a statistically significant relation to that event. Four numbers are gathered in the analysis:

- The number of cases where the vaccine was given and the event happened.
- The number of cases where the vaccine was **not** given and the event happened.
- The number of cases where the vaccine was given and the event **did not** happen.
- The number of cases where the vaccine was **not** given and the event **did not** happen.

To do an analysis, choose a *Vaccine to Analyze* (in **Section 3, Vaccine Information**), then choose the *Comparison Situation* where the vaccine was **not** given. This defaults to being all cases where the vaccine is not mentioned, but you can choose a specific alternative vaccine instead. You can also use the vaccine name field to distinguish sub-types (such as manufacturer).

Comparison Situation:

* Inverse * (NOT the analyzed vaccine)
6VAX-F (Diphtheria + Tetanus Toxoids + Acellul
ADEN (Adenovirus (Live Oral Type 7))
ADEN_4_7 (Adenovirus (Live Oral Type 4 and 7
ANTH (Anthrax)
BCG (Bacillus Calmette-Guerin)
CEE (Central European Encephalitis)
CHOL (Cholera)
COVID19 (COVID-19)
COVID19-2 (COVID-19 (Bivalent))
DF (Dengue Tetravalent (Dengvaxia))
DPIPV (Diphtheria + Pertussis + Inactivated pol
DPP (Diphtheria + Pertussis + Polio (oral, live o
DT (Diphtheria + Tetanus Toxoids (Pediatric))

Name:

Next, choose an *Event* (below), either a symptom or a characteristic: ○ No Event Analysis

Symptom Event:

○ Single Symptom (from **Section 2**)
○ Analyze all MedDRA Low-Level Term (LLT) Symptoms
○ Analyze all MedDRA Preferred Term (PT) Symptoms
○ Analyze all MedDRA High-Level Term (HLT) Symptoms
○ Analyze all MedDRA High-Level Group Term (HLGT) Symptoms
◉ Analyze all MedDRA Symptom Organ Class (SOC) Symptoms

Limit the analysis by Event Characteristics (**Section 4**), Demographics (**Section 5**), or Dates (**Section 6**).

Event Characteristic:

○ Single Event (from **Section 4**)
○ Single Event by Standard Age
○ Single Event by Custom Age Breaks
○ Analyze all Event Characteristics

Limit the analysis by Demographics (**Section 5**) or Dates (**Section 6**).

Location:

Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas

Use Ctrl+Click to multiple select, Shift+Click for a range.

◉ **Age (Select):**

All Ages
< 6 Months
6-11 Months
1-2 Years
3-5 Years
6-17 Years
18-29 Years

It only takes a few seconds for the results to be presented. Since only the first branch of the MedDRA dictionary, the SOC level, was selected, the number of entries is small and only 6 entries are flagged as significant signals.

Frequentist Methods

An appendix is attached where the second level of branches is selected. At this level, 147 safety signals are present for South Carolina.

Vaccine: **COVID19 or COVID19-2**

Not Vaccine: **Cases WITHOUT COVID19 or COVID19-2**

Event: **All SOC Symptoms**

Considering: **Cases Where Location is South Carolina (19,274)**

Number of Cases that **do** have vaccine: **9,177**

Number of Cases that **do not** have vaccine: **10,097**

SOC Symptoms	**Has** Vaccine **Has** Event (N)	**Has** Vaccine **Not** Event	**Not** Vaccine **Has** Event	**Not** Vaccine **Not** Event	Chi-square	PRR
Blood and lymphatic system disorders	345	8,832	210	9,887	48.49	1.808
Cardiac disorders	2,067	7,110	1,359	8,738	270.3	1.673
Congenital, familial and genetic disorders	6	9,171	15	10,082	3.056	0.4401
Ear and labyrinth disorders	410	8,767	159	9,938	140.4	2.837
Endocrine disorders	95	9,082	45	10,052	23.17	2.323
Eye disorders	419	8,758	362	9,735	11.89	1.273
Gastrointestinal disorders	1,996	7,181	1,349	8,748	235.9	1.628
General disorders and administration site conditions	5,601	3,576	7,249	2,848	250.5	0.8501
Hepatobiliary disorders	20	9,157	14	10,083	1.716	1.572
Immune system disorders	865	8,312	1,584	8,513	170.0	0.6008
Infections and infestations	968	8,209	1,107	8,990	0.8641	0.9621
Injury, poisoning and procedural complications	2,937	6,240	4,525	5,572	332.6	0.7141
Investigations	2,480	6,697	1,074	9,023	858.4	2.541
Metabolism and nutrition disorders	280	8,897	546	9,551	65.08	0.5642
Musculoskeletal and connective tissue disorders	2,913	6,264	2,139	7,958	277.1	1.498
Neoplasms benign, malignant and unspecified (incl cysts and polyps)	61	9,116	40	10,057	6.651	1.678
Nervous system disorders	3,887	5,290	3,210	6,887	230.6	1.332
Pregnancy, puerperium and perinatal conditions	47	9,130	201	9,896	82.74	0.2573
Product issues	44	9,133	32	10,065	3.234	1.513
Psychiatric disorders	952	8,225	1,244	8,853	18.05	0.8420
Renal and urinary disorders	149	9,028	83	10,014	25.98	1.975
Reproductive system and breast disorders	308	8,869	72	10,025	173.8	4.707
Respiratory, thoracic and mediastinal disorders	1,941	7,236	1,077	9,020	400.1	1.983
Skin and subcutaneous tissue disorders	2,958	6,219	5,071	5,026	640.2	0.6418
Social circumstances	206	8,971	111	9,986	38.99	2.042
Surgical and medical procedures	297	8,880	129	9,968	85.34	2.533
Vascular disorders	1,750	7,427	1,381	8,716	102.7	1.394

An more detailed analysis from medalerts is provide as Appendix 5.3 .

4 What Does the CDC Say About Safety Signals Today?

The following is a press release or something like that summarizing the safety signals as of May 31, 2023:

CDC and FDA Identify Preliminary COVID-19 Vaccine Safety Signal for Persons Aged 65 Years and Older

May 31, 2023

At the April 19, 2023 meeting of the Advisory Committee on Immunization Practices, CDC presented data related to further analyses of a preliminary safety signal for persons ages 65 years and older who received the updated (bivalent) Pfizer-BioNTech COVID-19 vaccine in one safety monitoring system, the Vaccine Safety Datalink (VSD). Other safety monitoring systems have not observed similar findings. As time has passed and more safety data have accumulated, the initial finding has decreased, and scientists believe factors other than vaccination might have contributed to the initial finding. The current evidence does not support the existence of a safety issue. FDA and CDC will continue to evaluate data as they are available and update the public as needed.

January 13, 2023

Transparency and vaccine safety are top priorities for the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA). U.S. government agencies use multiple, complementary safety monitoring systems to help detect possible safety signals for vaccines and other medical countermeasures as early as possible and to facilitate further investigation, as appropriate. Often these safety systems detect signals that could be due to factors other than the vaccine itself.

All signals require further investigation and confirmation from formal epidemiologic studies. When one system detects a signal, the other safety monitoring systems are checked to validate whether the signal represents an actual concern with the vaccine or if it can be determined to be of no clinical relevance.

Following the availability and use of the updated (bivalent) COVID-19 vaccines, CDC's Vaccine Safety Datalink (VSD),[7] a near real-time surveillance system, met the statistical criteria to prompt additional investigation into whether there was a safety concern for ischemic stroke in people ages 65 and older who received the Pfizer-BioNTech COVID-19 Vaccine, Bivalent. Rapid-response investigation of the signal in the VSD raised a question of whether people 65 and older who have received the Pfizer-BioNTech COVID-19 Vaccine, Bivalent were more likely to have an

[7] VSD is exactly the technology that would be used for a South Carolina replacement for VAERS.

ischemic stroke in the 21 days following vaccination compared with days 22-42 following vaccination.

This preliminary signal has not been identified with the Moderna COVID-19 Vaccine, Bivalent. There also may be other confounding factors contributing to the signal identified in the VSD that merit further investigation. Furthermore, it is important to note that, to date, no other safety systems have shown a similar signal and multiple subsequent analyses have not validated this signal:

A large study of updated (bivalent) vaccines (from Pfizer-BioNTech and Moderna) using the Centers for Medicare and Medicaid Services database revealed no increased risk of ischemic stroke

A preliminary study using the Veterans Affairs database did not indicate an increased risk of ischemic stroke following an updated (bivalent) vaccine

The Vaccine Adverse Event Reporting System (VAERS) managed by CDC and FDA has not seen an increase in reporting of ischemic strokes following the updated (bivalent) vaccine

Pfizer-BioNTech's global safety database has not indicated a signal for ischemic stroke with the updated (bivalent) vaccine

Other countries have not observed an increased risk for ischemic stroke with updated (bivalent) vaccines

Although the totality of the data currently suggests that it is very unlikely that the signal in VSD represents a true clinical risk, we believe it is important to share this information with the public, as we have in the past, when one of our safety monitoring systems detects a signal. CDC and FDA will continue to evaluate additional data from these and other vaccine safety systems. These data and additional analyses will be discussed at the upcoming January 26 meeting of the FDA's Vaccines and Related Biological Products Advisory Committee.

***No change in vaccination practice is recommended**. CDC continues to recommend that everyone ages 6 months of age and older stay up-to-date with COVID-19 vaccination; this includes individuals who are currently eligible to receive an updated (bivalent) vaccine. Staying up-to-date with vaccines is the most effective tool we have for reducing death, hospitalization, and severe disease from COVID-19, as has now been demonstrated in multiple studies conducted in the United States and other countries:*

Data have shown an updated COVID-19 vaccine reduces the risk of hospitalization from COVID-19 by nearly 3-fold compared to those who were previously vaccinated but have not yet received the updated vaccine.

Data have shown that the updated COVID-19 vaccine also reduces the risk of death from COVID-19 by nearly 19-fold compared to those who are unvaccinated.

Other preliminary dataExternal Link Disclaimer from outside the U.S. have demonstrated more than 80% protection against severe disease and death from the bivalent vaccine compared to those who have not received the bivalent vaccine.

> *Overall safety data for the bivalent COVID-19 vaccines are available here.*
> *Once again, **no change is recommended in COVID-19 vaccination practice**, which can be found here.*

The last reference is worthy of reading, but it is beyond the scope of this tutorial. There are so many issues to highlight in this MMWR report (Morbidity and Mortality Weekly Report.) It is discussed in another volume of this series, Volume 4.[8] If you read it, count how many times the term "safety signal" was mentioned. Ask yourself what "serious events" means. Ask yourself what symptoms rose to the top as being safety events. Ask yourself why the V-Safe data are used. Ask yourself if the date interval used when discussing VAERS had any significance. Ask yourself how the total report compares with the other reports used as examples in this report. Ask yourself where the comparable report for SC produced by DHEC is.

One final note: Look at the author list. Then go to the bottom of the article, under Acknowledgements. "*All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflicts of interest were disclosed*." Just above that are two numbers, those numbers reference the employers of the individuals:

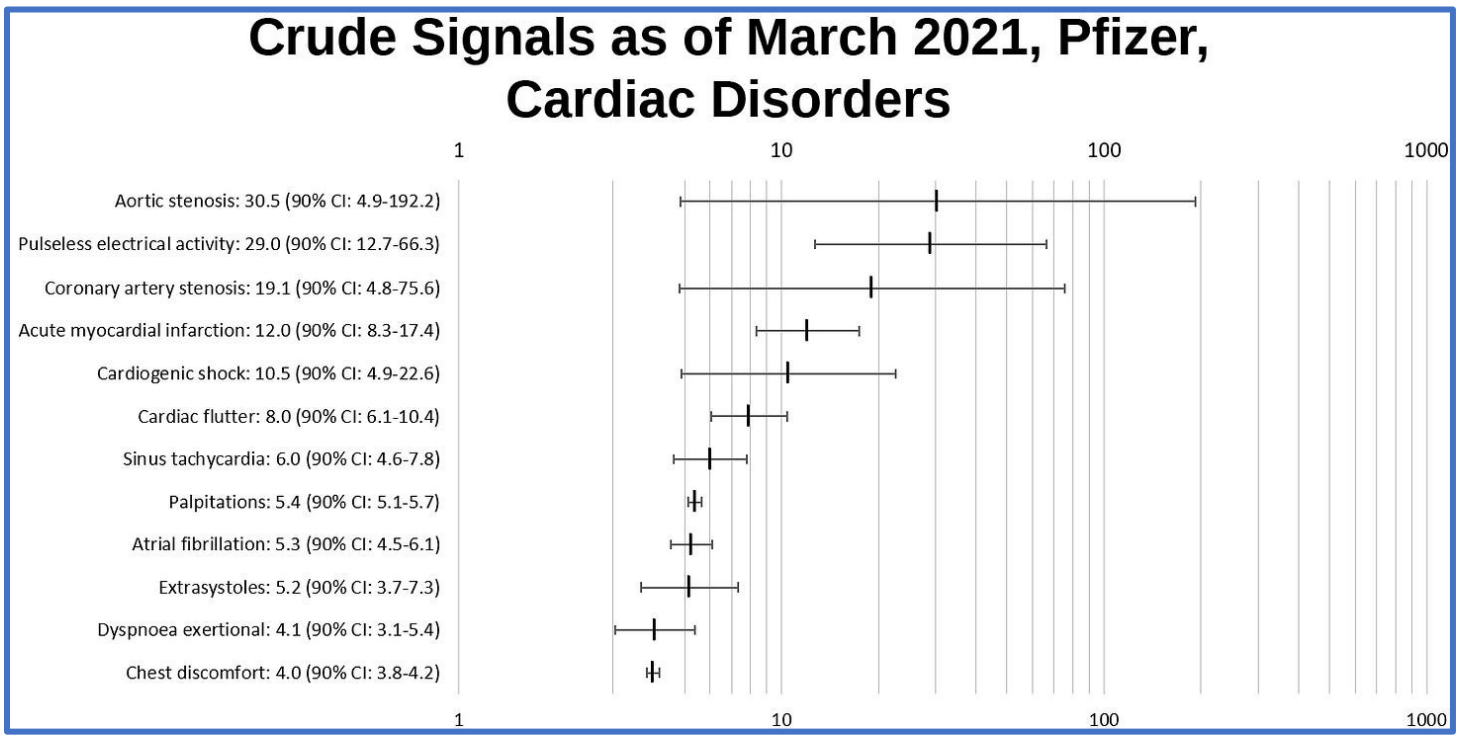
> *[1]CDC COVID-19 Emergency Response Team; [2]Food and Drug Administration, Silver Spring, Maryland.*

[8] It is discussed in another volume of this series, Volume 4.

5 Appendices

5.1 PRRs by SOC from Fabian Spieker Web Site pervaers.com, Data as of March, 2021 Pfizer

5.1.1 Cardiac Disorders



Pulseless electrical activity

- Pulseless electrical activity (PEA), also known as electromechanical dissociation, describes a state where electrical impulses are still being generated and conducted by the specialized cardiac muscle cells responsible for this, but the remaining cardiomyocytes are not responding to this with contractions - resulting in a heart that is not beating.
- Myocarditis-associated case report 1
- Myocarditis-associated case report 2

Coronary artery stenosis

- Coronary artery stenosis/obstruction occurs when the coronary arteries — the blood vessels supplying blood to the heart — narrow. This narrowing can restrict blood flow to the heart, causing oxygen deficiency accompanied by symptoms such as chest pain or

shortness of breath.
With or without treatment, coronary arteries can become completely blocked, a condition called chronic total occlusion. Coronary artery stenosis ultimately leads to myocardial infarction.

- Review of myocardial infarctions after modRNA vaccine administration

Acute myocardial infarction

- Acute myocardial infarction or heart attack is myocardial necrosis resulting from acute obstruction of a coronary artery. Symptoms include radiating chest pain from mild to unbearably painful, dyspnea, nausea and diaphoresis (excessive sweating without physical exertion).

- Review of myocardial infarctions after modRNA vaccine administration

Cardiogenic shock

- Cardiogenic shock is a life-threatening condition in which your heart is unable to pump enough blood to meet your body's needs. The condition is most often caused by a severe heart attack, but not everyone who has a heart attack experiences cardiogenic shock.

- Review of myocardial infarctions after modRNA vaccine administration

Cardiac flutter

- A relatively common and often benign type of arrythmia that starts in the atrial chambers of the heart. When it occurs, it is associated with an elevated pulse, that represents an unstable rhythm which often degrades into (less benign) atrial fibrillation.

- A short article on arrythmias occurring after COVID vaccination

Sinus tachycardia

- This is just a heartbeat of over 100 beats per minute. The excitation begins in the sinus node - where it should begin - and spreads regularly. Just a high heart beat with a scary name.

- A short article on arrythmias occurring after COVID vaccination

Palpitations

- Palpitations are perceived abnormalities of the heartbeat characterized by awareness of cardiac muscle contractions in the chest, which is further characterized by hard, fast and/or irregular beating of the heart.

Palpitations are not always accompanied by actual arrythmias and arrythmias are not always accompanied by palpitations.

- A short article on arrythmias occurring after COVID vaccination

Atrial fibrillation

- Atrial fibrillation (AF, AFib or A-fib) is an abnormal heart rhythm (i.e. arrhythmia) characterized by rapid and irregular beating of the atrial chambers of the heart. It often begins as short periods of abnormal beating, which become longer or continuous over time.
  It can be a consequence of myocarditis and myocardial infarctions and can result in heart failure or stroke among other complications.

- A short article on arrythmias occurring after COVID vaccination

Extrasystoles

- Extrasystoles are another benign form of arrythmia corresponding to a premature contraction of one of the chambers of the heart. They typically have no long-term complications and do not require treatment.

Dyspnea exertional

- Exertional dyspnea is dyspnea that presents with exercise and improves with rest. Dyspnea is - like palpitations - a symptom and describes the perceived difficulty to breathe. It impacts millions of people and is often the main manifestation of respiratory, cardiac, neuromuscular, psychogenic or other illnesses.

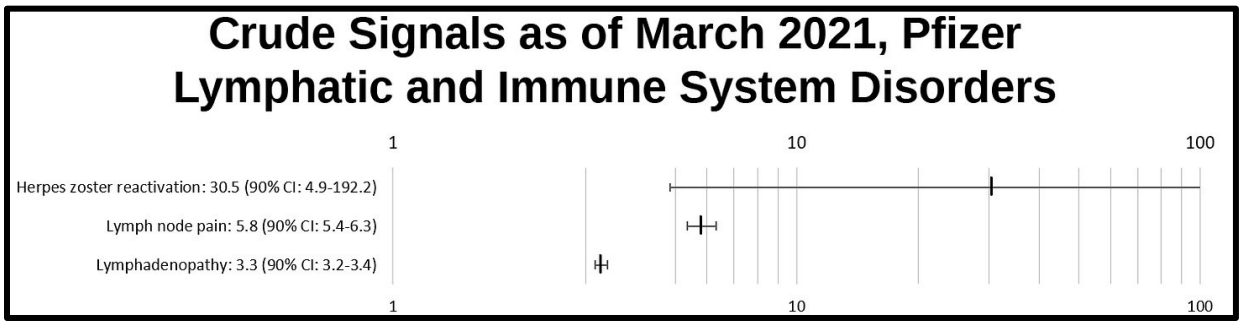
- A general review about exertional dyspnea

Chest discomfort

- Chest discomfort often accompanies respiratory and cardiac disorders, like myocardial infarctions, pulmonary embolisms, myopericarditis or pneumonia.

- Review of myocardial infarctions after modRNA vaccine administration, warning of chest discomfort

5.1.2 Lymphatic and Immune System Disorders



Herpes zoster reactivation

- Herpes zoster, also known as shingles, is caused by reactivation of varicella-zoster virus (VZV), the same virus that causes varicella (chickenpox).
  Primary infection with VZV causes varicella. After a person has varicella, the virus remains latent in the dorsal root ganglia (nerve cells). VZV can reactivate later in a person's life and cause herpes zoster, a painful maculopapular and then vesicular rash.

- Review of post-vaccination Herpes Zoster reinfection articles

Lymph node pain

- Painful lymph nodes usually occur as a result of vaccination or infection from bacteria or viruses. Less commonly, swollen lymph nodes are caused by cancer.

- Dr. Edmonds of Penn Medicine explains "Lymph node swelling following the COVID-19 vaccine isn't even technically an adverse response. It's simply a response."

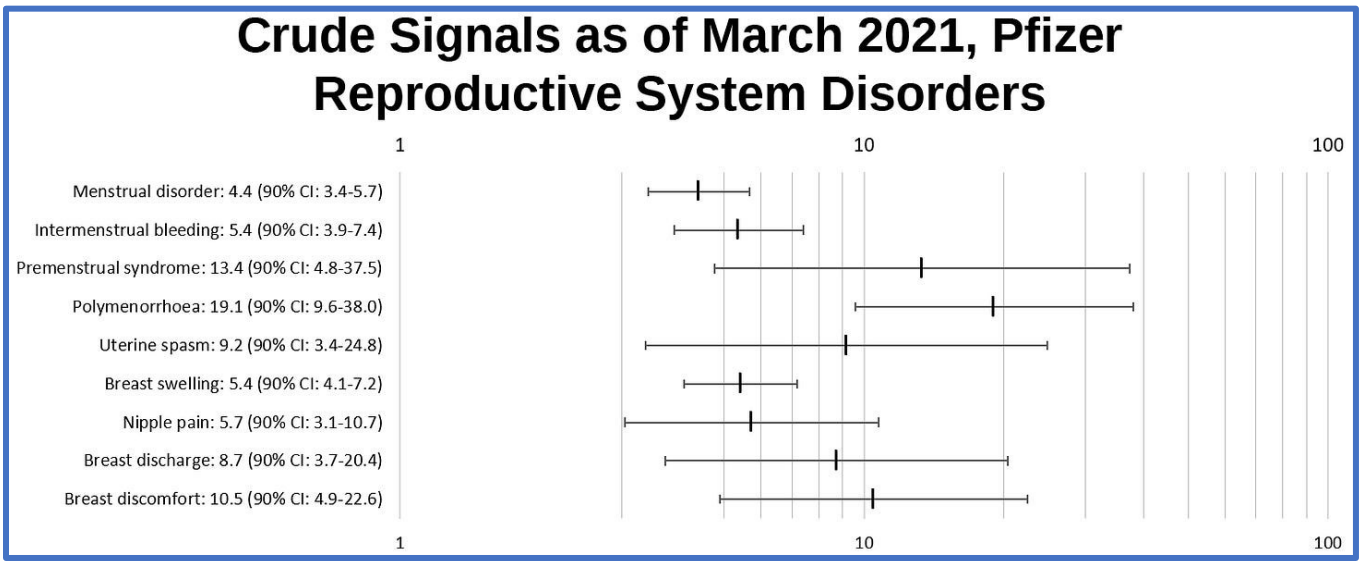
- Review of post-vaccination Lymphadenopathy articles

Lymphadenopathy

- Lymphadenopathy or adenopathy is a disease of the lymph nodes, in which they are abnormal in size or consistency.
  Dr. Edmond of Penn Medicine approves of lymphadenopathy after COVID vaccination, because "It means you're responding. We just don't want to confuse it with a bad thing."

- Review of post-vaccination Lymphadenopathy articles

5.1.3 Reproductive System Disorders



Menstrual disorder

- Any irregulatity in menstrual cycles
- Review of post-vaccination menstrual disorders

Intermenstrual bleeding

- Intermenstrual bleeding or metrorrhagia is just menstrual bleeding at unexpected points in time without any changes in the timing of periods.
- Review of post-vaccination menstrual disorders

Premenstrual syndrome

- Premenstrual syndrome (PMS) is a disruptive set of emotional and physical symptoms that regularly occur in the one to two weeks before the start of each menstrual period. It is often accompanied by headaches, breast tenderness and bloating.
- Review of post-vaccination menstrual disorders

Polymenorrhoea

- Polymenorrhoea occurs when menstrual cycles are shorter than usual (28 days), leading to more frequent periods.

- Review of post-vaccination menstrual disorders

Uterine spasm

- While often described as contractions of the pelvic floor muscles occurring spontaneously, uterine spasms can also be a complication of giving birth. A look at individual reports could clear up how this signal is to be understood.

Breast swelling

- Penn Medicine tells us “Swelling after the COVID vaccine or booster can actually be considered good.”

Nipple pain / Breast discomfort

- In most cases, sore nipples are caused by hormonal changes from pregnancy or menstruation, allergies or friction from clothing. In rare cases, it can be a sign of a serious disease like breast cancer.

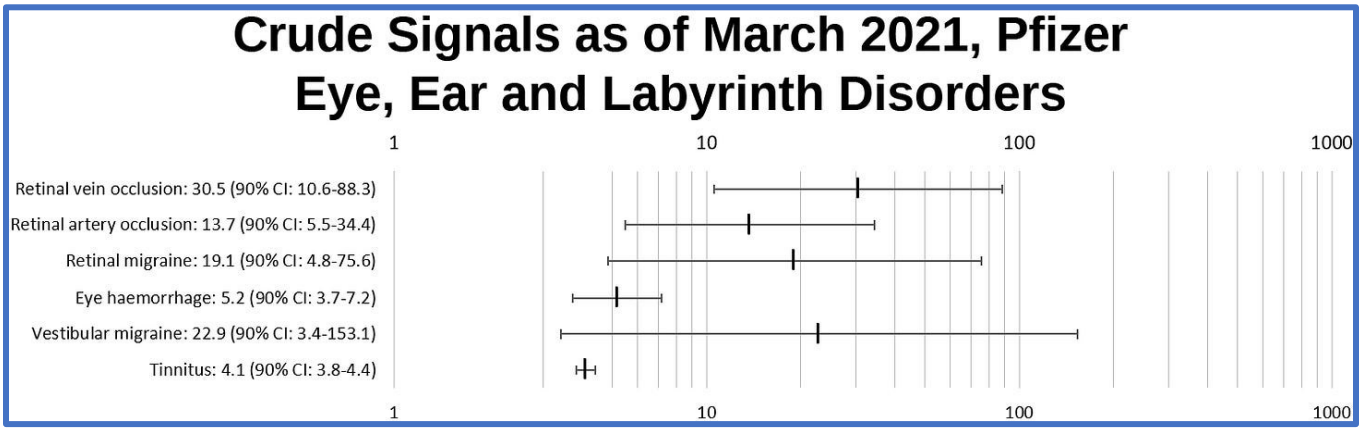
- An article on how COVID vaccination symptoms can mimic breast cancer

Breast discharge

- This can mean both lactation and discharge of other bodily fluids, the latter of which can represent signs of breast cancer.

- An article on how COVID vaccination symptoms can mimic breast cancer

5.1.4 Eye, Ear and Labyrinth Disorders



Retinal vein occlusion

- The central retinal vein is the most important vessel responsible for draining blood from the retina. RVO is a blockage of the central retinal vein usually manifests secondary to inherited or acquired vascular or metabolic disorders.

- A review on post-vaccination RVO

Retinal artery occlusion

- Retinal artery occlusion is usually caused by blood clots. The retinal artery supplies blood to the retina.

- A case report about retinal artery occlusion occurring post COVID vaccination

Retinal migraine

- Retinal migraines are a type of migraine that affect the eyes. They can cause temporary vision loss in the affected eye and other ocular symptoms.

- Like many other symptoms, this seems to occur both as a COVID-19 sequester and as a vaccine adverse event

Eye haemorrhage

- Any form of bleeding occurring in the eye. Since there are signals for retinal vessel occlusions, this one is probably related to them.

- A review of ocular adverse events associated with COVID vaccination

Vestibular migraine

- A type of migraine that involves the vestibular organ and can occur with or without headaches, causing dizziness, motion sickness and loss of balance.

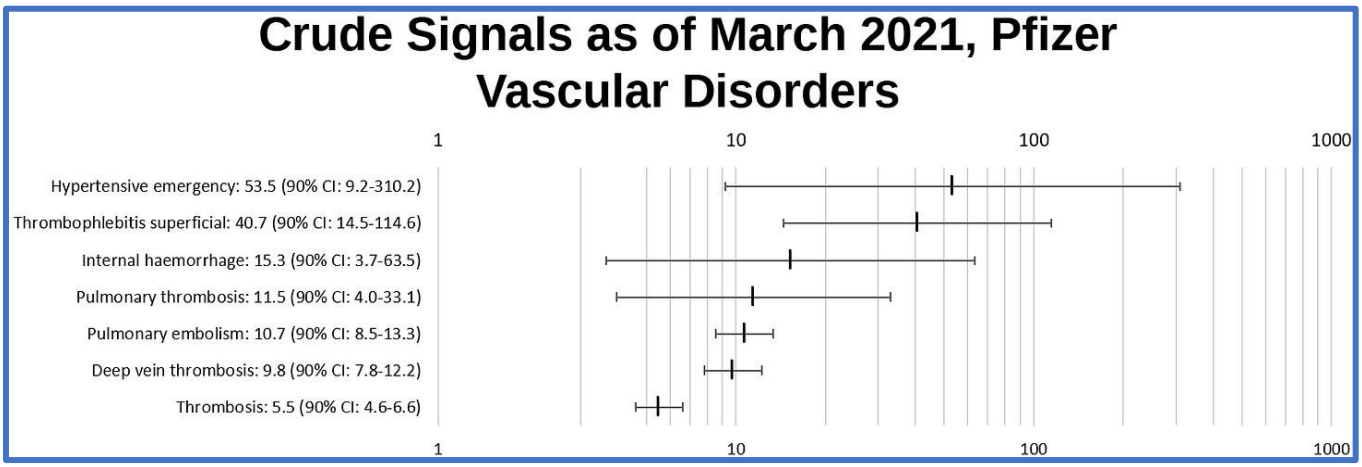
- An article on vestibular adverse events associated with COVID vaccination

Tinnitus

- Tinnitus is a variety of sound that is heard when no corresponding external sound is present.

- An article on COVID vaccine induced tinnitus

5.1.5 Vascular Disorders



Hypertensive emergency

- A hypertensive emergency is an acute, marked elevation in blood pressure that is associated with signs of target-organ damage. These can include pulmonary edema, cardiac ischemia, neurological deficits, acute renal failure, aortic dissection, and eclampsia. The incidence after COVID vaccination is estimated to be 0.6%

- This article proposes pathomechanisms of post-vaccination hypertensive emergencies

Thrombophlebitis superficial

- A superficial thrombophlebis is an inflammation of one of the veins located underneith your skin. In most cases this happens due to blood clots being present in the affected vein.

- It seems there are no scientific articles describing the occurrence of thrombophlebitides after COVID vaccination, possibly because it is usually a benign, albeit potentially long and painful process.

Internal haemorrhage

- Internal bleeding or internal hemorrhage is a loss of blood from a vessel inside the body. The blood is usually not visible from outside of the body. It is caused by traumatic or non-traumatic rupturing of blood vessels, medication, thrombocytopenia and other disorders.

- An article on immune thrombocytpenia after modRNA vaccination

Pulmonary thrombosis

- Blood clots originating in the lung and presenting similarly to pulmonary embolisms. It has been proposed that these are a manifestation of local inflammation. Happens in COVID. Happens after vaccination

- Here is an article focused on this oddity

Pulmonary embolism

- Pulmonary embolisms are clots arising from other parts of the body - usually the legs where blood flow is slower - before becoming stuck in an arterial vessel inside the lung, blocking that vessel and causing anything from no symptoms at all over shortness breath, rapid breathing and coughing blood to sudden death, depending almost solely on the size of the clot.

- Unfortunately there is very little to be found in scientific literature about thrombotic events and hypercoagulability after modRNA vaccination. This is a case series.

Deep vein thrombosis

- There are superficial and deep veins. Superficial veins run under the skin, outside of the body fascia, while deep veins run inside the body fascia. As the name suggests, a deep vein thrombosis is a clot that forms inside the deep veins, most commonly in the legs where the blood flow is slower.

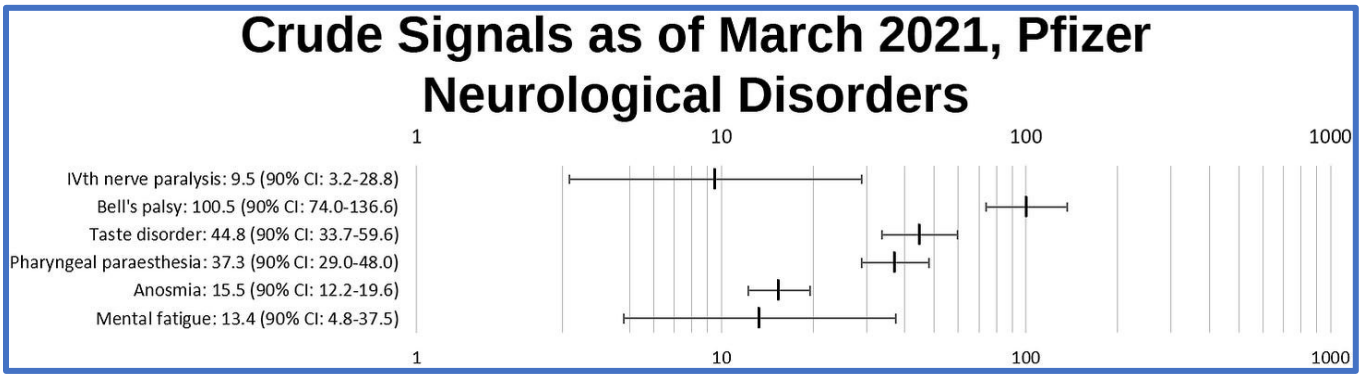
- Again, all I can offer is this case series.

Thrombosis

- Any blood clot forming inside a blood vessel, arterial or venous.

- Just a case series

5.1.6 Neurological Disorders



Bell's palsy

- Bell's palsy is a malfunction of the facial nerve, which is the seventh cranial nerve. There are 12 pairs of cranial nerves, which are nerves emerging directly from the brain, innervating tissue in the head and torso.
  Cranial nerve VII controls the facial muscles, supplies taste fibers and provides parasympathic innervation to a number of glands.
  Bells's palsy is characterized by a one-sided facial droop - better known as the "Pfizer Smile".

- A review on post-vaccination Bell's palsy

IVth nerve paralysis

- The 4th cranial nerve is the trochlear nerve which only function is to move the eye, abducting it, depressing it and rotating it inwards. Like any other nerve, it can become paralyzed, resulting in loss of control over eye movement.

- A review on post-vaccination oculomotor disorders

Taste disorder

- Bell's palsy can come with taste disorder, but only in the anterior 2/3 of the tongue (the outer 2/3) - other taste disorders are probably caused by spike-mediated effects.

- No biggie. Not spike-related say Lechien et al.

Pharyngeal paresthesia

- The glossopharyngeal nerve is the 9th cranial nerve and the one that supplies sensory fibers to the pharynx among many functions. Paresthesiae are abnormal sensations - usually superficial - like tingling, burning or numbness.

- There's no publication on this, but here is one on hypoglossal nerve palsy - the 12th cranial nerve. Starting to see a pattern, yet?

Anosmia

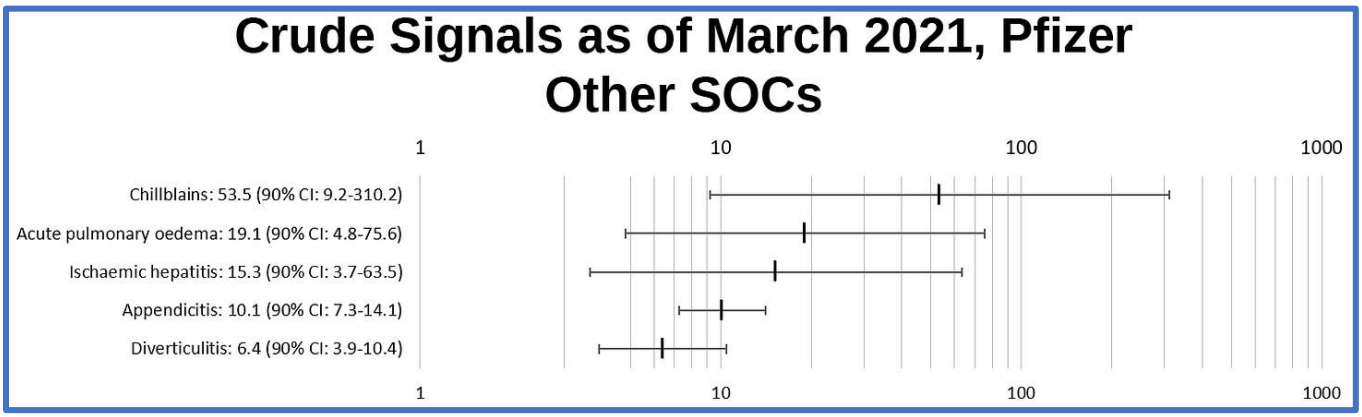
- Anosmia is loss of smell. The olfactory nerve is the 1st cranial nerve.

- No biggie. Not spike-related say Lechien et al.

Mental fatigue

- Seeing all these cranial nerve dysfunctions, could mental fatigue be immune-mediated?

5.1.7 Other SOCs



Chillblains

- Chil(l)blains aka pernio or "COVID toes" describes inflammation of the capillaries in the hands and feet, particularly upon exposure to cold or humidity. It is not just a symptom of Chilblain Lupus erythematodes (CHBL1), but also of COVID disease and vaccination. I suppose that's just what happens when these peripheral capillaries express viral protein.

- This is a publication on post-vaccination Chilblains which also mentions infection-induced Chilblains.

Acute pulmonary edema

- The term edema describes water accumulating where it shouldn't. Pulmonary edema occurs in the lungs and is a life-threatening condition, beacause it limits gas exchange. The signal could be related to pulmonary embolisms which increase the pressure in pulmonary arteries that transport blood from the heart to the lung.
  It could also have a cardiac cause. When the left ventricle of the heart fails, blood accumulates in the vessels behind it which are carrying oxygenated blood from the lung to the heart. This increases the pressure in those veins and leads to water accumulating in the lung.

- Or it could be pneumonitis. Further analysis of co-occurrences could answer these questions.

Ischaemic hepatitis

- Ischemia is a lack of oxygen due to reduced blood flow. The liver can be affected due to shock, but considering these patients took modRNA vaccines, blood clots in the hepatic artery being causal here is certainly not that unlikely.

- There is a report of hepatic artery occlusion after AstraZeneca vaccination

Appendicitis

- Inflammation of the appendix, a dead end in the first section of your colon.
  I found no sign of this in German hospital data.

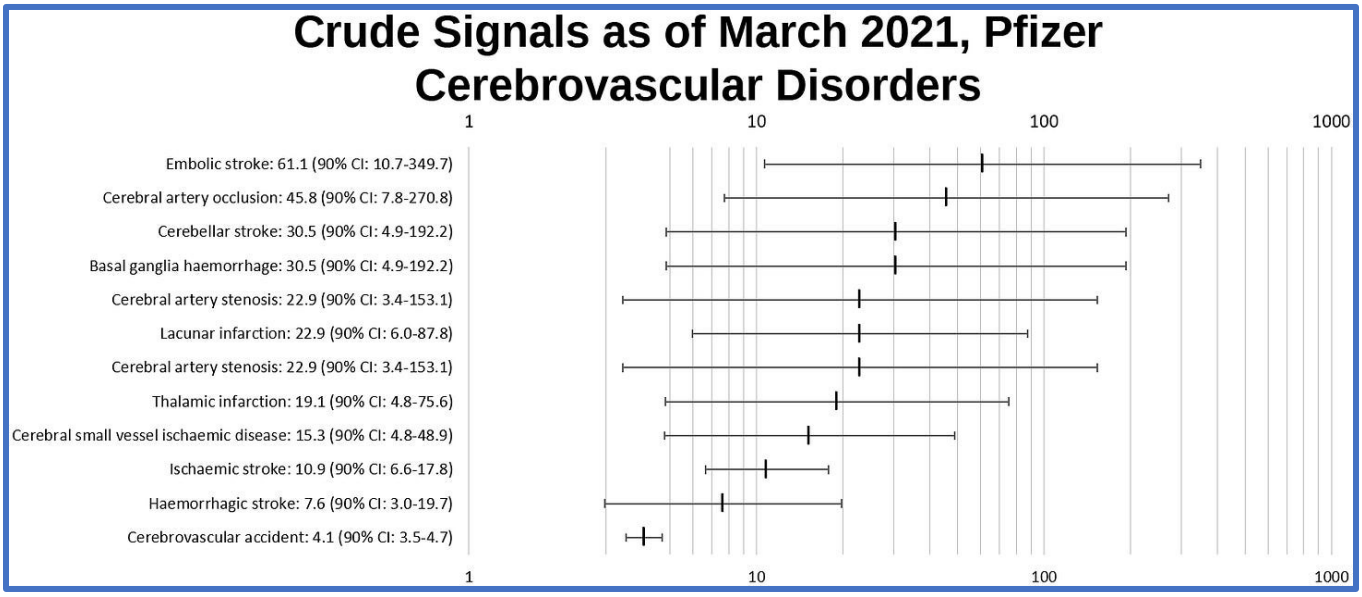
- The association between COVID vaccines has been investigated numerous times, despite VAERS signal being much weaker than for thrombotic events (limited hangout?), possibly because there were calls for investigation, but no increased incidence was found.

Diverticulitis

- Inflammation in acquired pouches of the colon, so-called diverticles. Diverticulitis can cause rupture of the colon, most often resulting in death, just like appendicitis can result in death, if left untreated.

- Here is an article about the various gastrointestinal issues reported to VAERS

5.1.8 Cerebrovascular Disorders



Embolic stroke

- Embolic stroke occurs when a clot migrates (this is called an embolism) from its source to block a cerebral artery, resulting in lack of perfusion to part of the brain and ultimately cell death. The clots usually originate from the heart or arterial vessels leading from the heart to the brain, but they can occasionally originate from venous vessels as well, if there is a shunt in the heart, allowing the clot to travel from right to left side of the heart.

- Review of COVID-vaccination-associated strokes

Cerebral artery occlusion / Cerebral artery stenosis

- The cerebrum is the large walnut-like looking part making up around 80% of your brain mass. About 45% of strokes occur inside this region. The artery most frequently involved is the middle cerebral artery. When it becomes clogged this will usually present with signs most commonly associated with stroke, like hemiparesis and sensory loss.

- Review of COVID-vaccination-associated strokes

Cerebellar stroke

- The cerebellum is a small part of the brain located in the back, underneith the walnut-like structure that is the cerebrum. It is important for motorcoordination. Depending on which of the three large arteries is affected, cerebellar strokes can present with and without ataxia (loss of motorfunction). Other possible symptoms are headaches, nausea, nystagmus, but also sensory loss of pain and temperature.

- Case report of a cerebellar stroke after modRNA vaccination

Basal ganglia haemorrhage

- Basal ganglia are a group of nerve cell clusters inside the brain that are responsible for a large array of learning, cognitive, emotional and motorical functions. Haemorrhagic strokes are the most common form of stroke in basal ganglia, are often a result of high blood pressure and presents with cognitive, sensory and motorical dysfunction, as well as headaches.

- Case report of basal ganglia haemorrhage after modRNA vaccination

Lacunar infarction

- Lacunes are empty spaces in various deep regions of the brain, that arise when penetrating arteries supplying the respective region with blood become obstructed. While sometimes silent, when lacunar infarctions do present with symptoms these are usually motorical and sensory loss of function.

- Case 6 in this case series of patients with neurological adverse events had a thalamic lacunar infarction

Thalamic infarction

- The thalamus is a very small region in the center of the brain, which relays motor and sensory signals and also plays an important role in alertness, mood, speech and pain processing. Infarctions usually present with impaired sensory function, that can transition into a debilitating pain syndrome called Dejerine–Roussy syndrome.

- A case report of a modRNA-vaccinated patient suffering bilateral (both sides) thalamic stroke

Cerebral small vessel ischaemic disease

- CVSD (Cerebral Small Vessel Disease) describes a process in which the smallest of vessels in the cerebrum become clogged, that is very common among elders, contributing to about 20% of strokes and 45% of dementias.

- A link to COVID-19 has been discussed. It isn't entirely unlikely that the same processes take place after COVID vaccination.

Ischaemic stroke

- Ischaemic strokes are caused by clots blocking the blood flow to parts of the brain.

- Review of COVID-vaccination-associated strokes

Haemorrhagic stroke

- Haemorrhagic strokes are caused by ruptured blood vessels in the brain.

- Review of COVID-vaccination-associated strokes

Cerebrovascular accident

- Cerebrovascular accident is a general term describing all of the above concepts. An interruption of blood flow to parts of the brain.

- Review of COVID-vaccination-associated strokes

5.2 PRD Results from Fabian Spieker's Web Site, pervaers,com, By Age Through 2023-01-13, Partial List

5.2.1 Introduction

https://pervaers.com provides PRD results by age group for various adverse event classes. These data cover through mid-January 2023. Any result above 0 is a safety signal that should have been processed according the safety signal protocol.

These are VAERS US patient data. To my knowledge, and based on the FOIA responses of DHEC, these protocols were not executed by DHEC.

In most cases below, three graphs are presented for each AE: male, combined, female. The reason is that the results between male and female was, to the eye, significant. (For example, all cause death data is showing that males are overrepresented in excess mortality.[9])

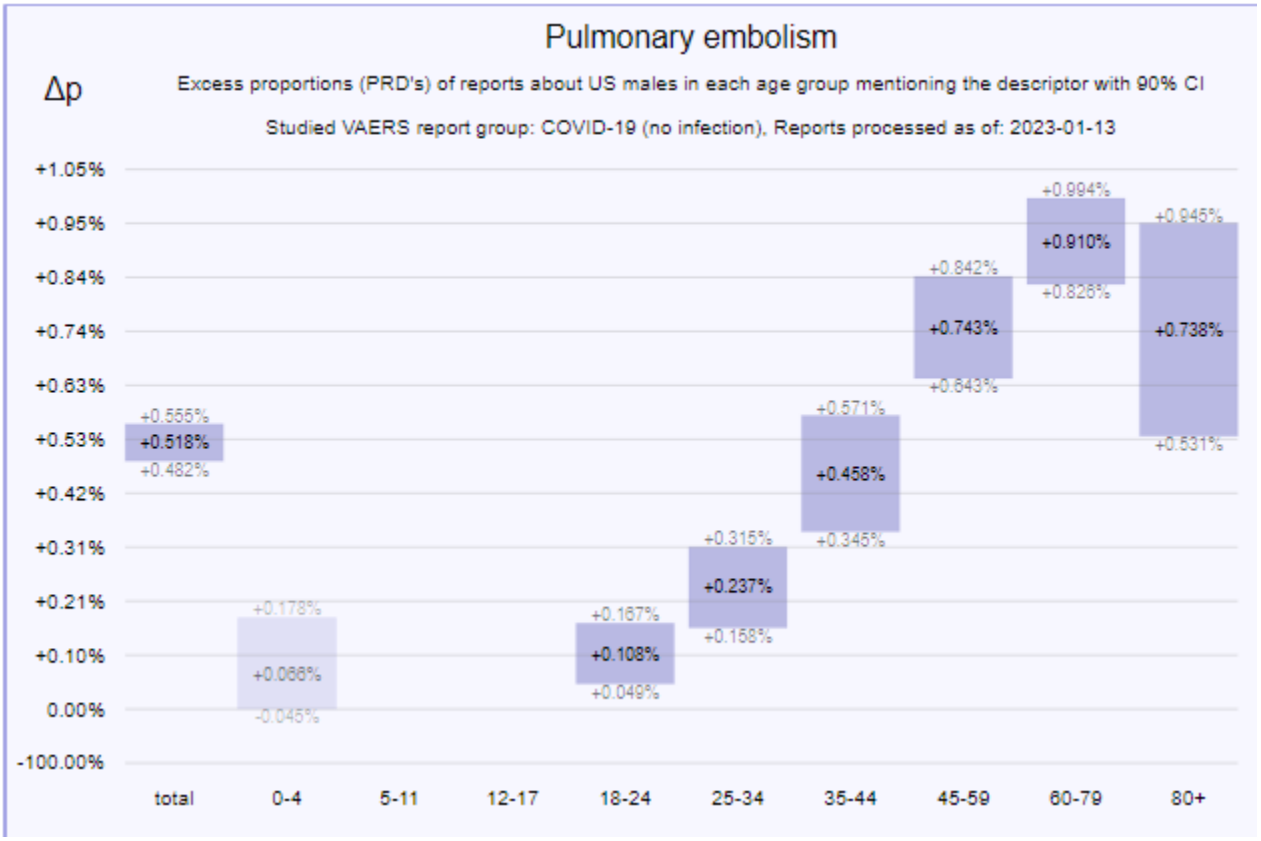
Only a sample of the results are given. Visit the web site for all of them… all 300 + Safety Signals.

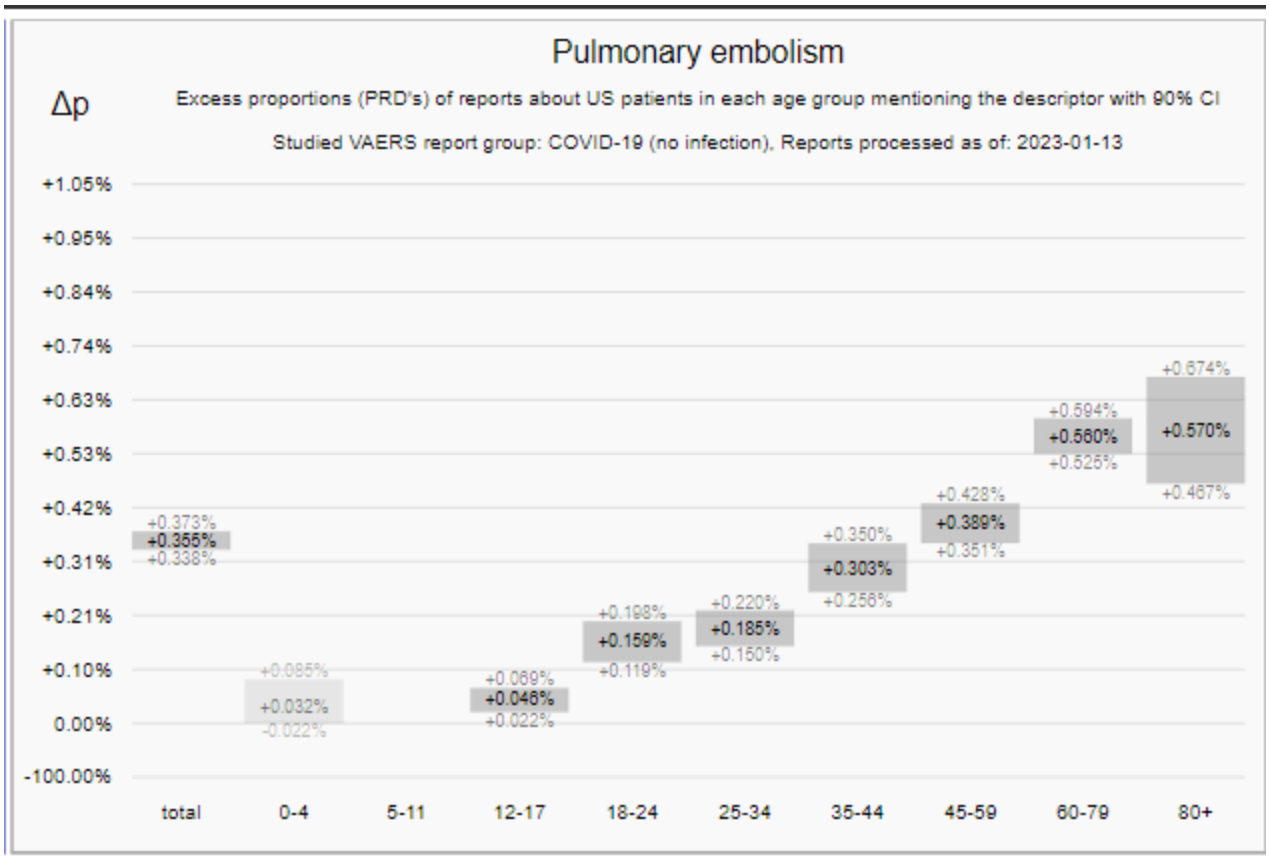
Browse through these results. How many of these signals do you think led to more serious conditions over time? Signals can be a warning that, even after the fact, might be successfully treated.

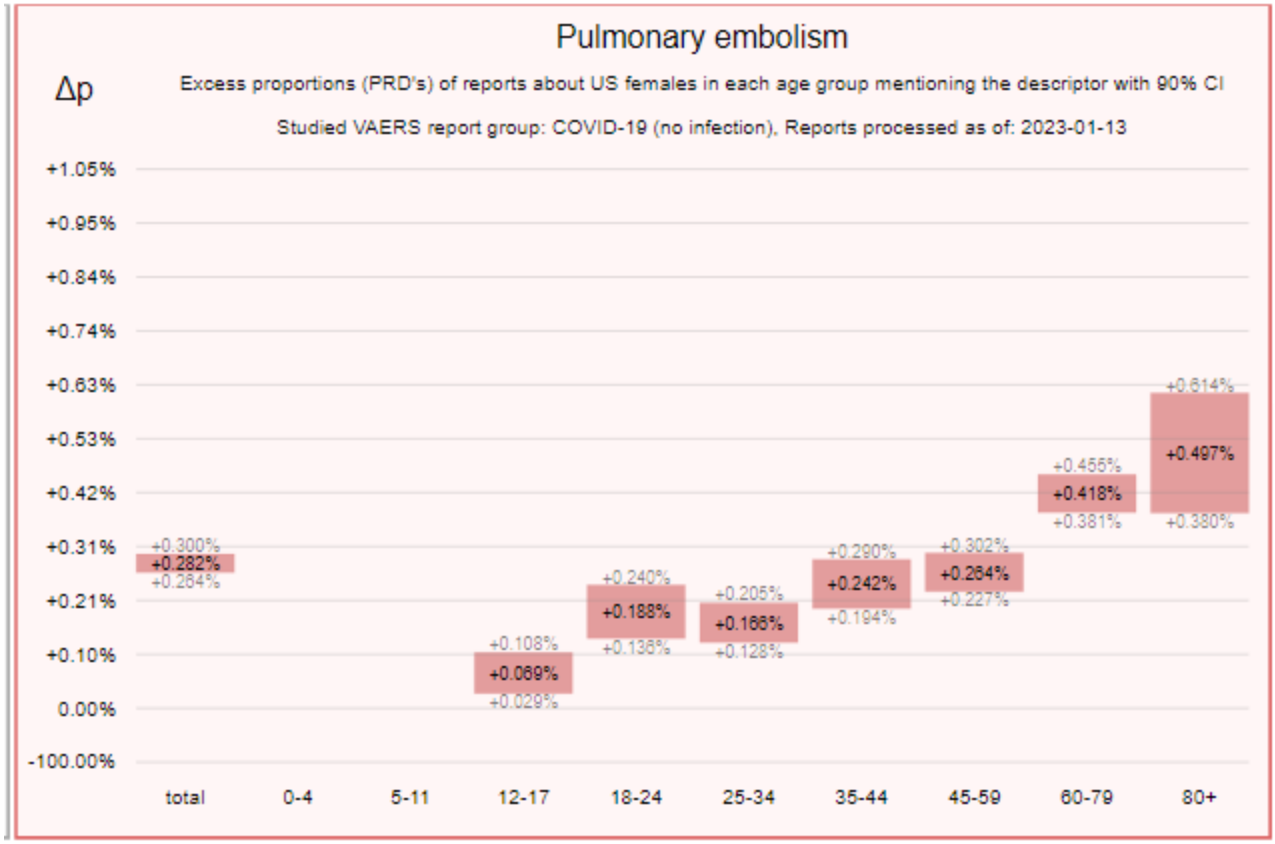
[9] See Volume 6a of this series: *Methods for Establishing the Number of Deaths from Covid-19 Vaccination, with Sample Results*

5.2.2 Cardiovascular System

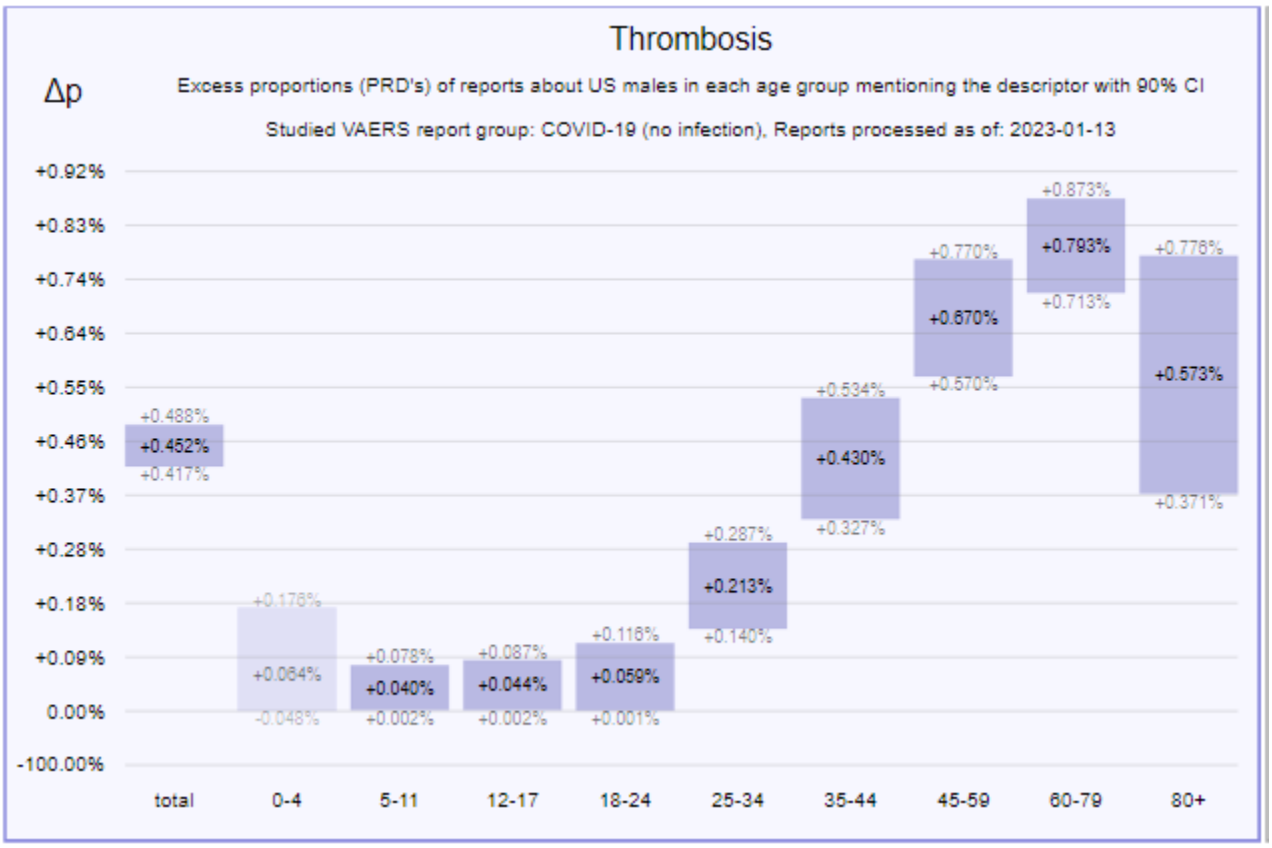
5.2.2.1 Pulmonary Embolism

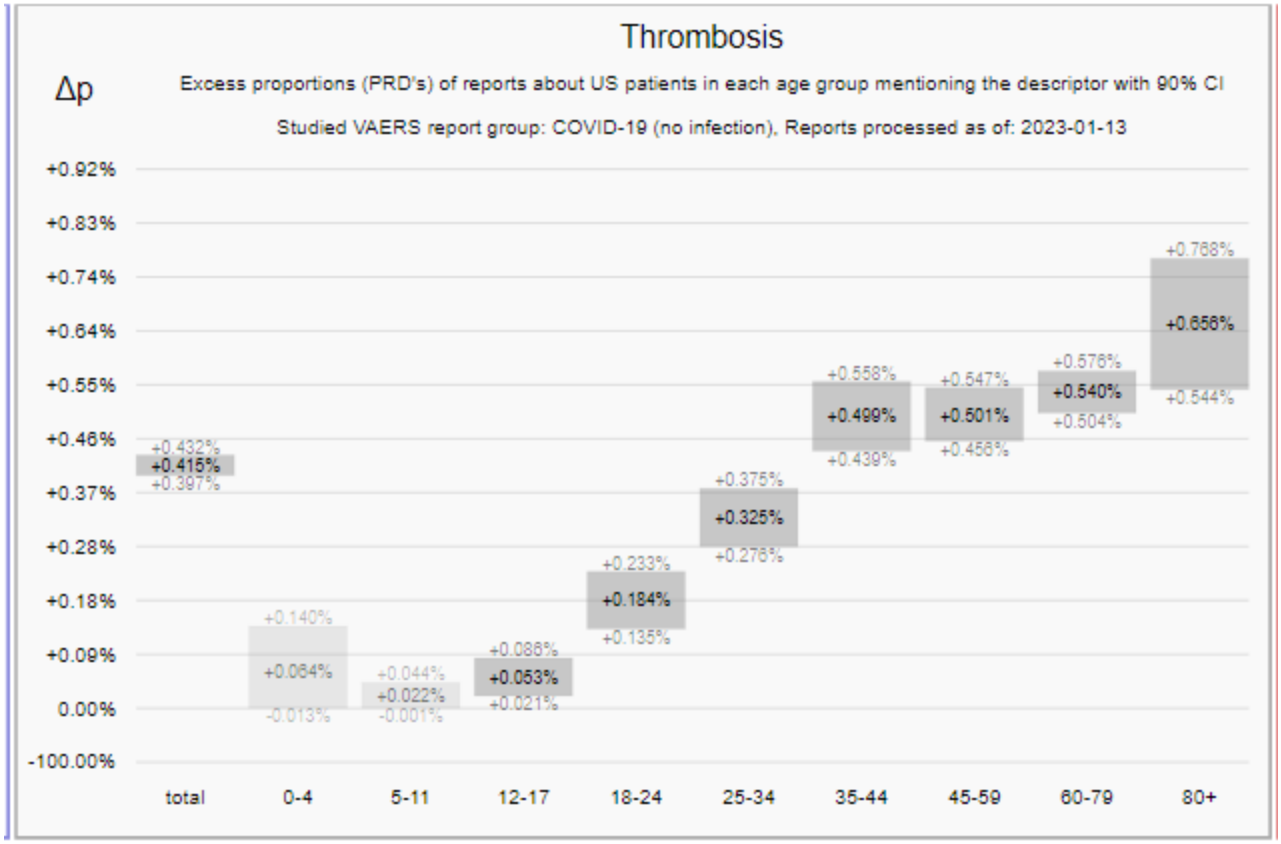


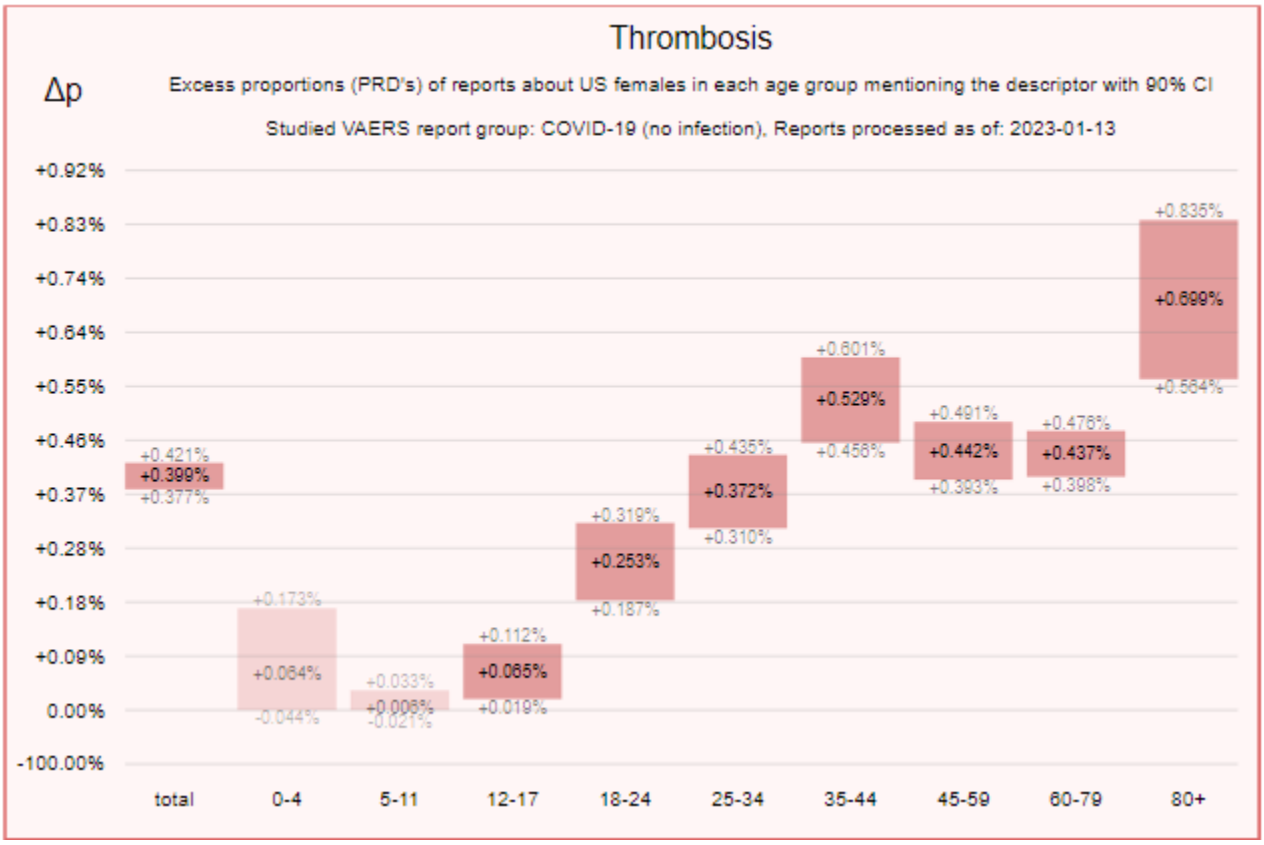

Pulmonary embolism
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.05%
+0.95%
+0.84%
+0.74%
+0.63%
+0.53%
+0.42%
+0.31%
+0.21%
+0.10%
0.00%
-100.00%
+0.373%
+0.355%
+0.338%
+0.085%
+0.032%
-0.022%
+0.069%
+0.046%
+0.022%
+0.198%
+0.159%
+0.119%
+0.220%
+0.185%
+0.150%
+0.350%
+0.303%
+0.256%
+0.428%
+0.389%
+0.351%
+0.594%
+0.560%
+0.525%
+0.674%
+0.570%
+0.467%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Pulmonary embolism
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.05%
+0.95%
+0.84%
+0.74%
+0.63%
+0.53%
+0.42%
+0.31%
+0.21%
+0.10%
0.00%
-100.00%
+0.300%
+0.282%
+0.264%
+0.108%
+0.069%
+0.029%
+0.240%
+0.188%
+0.136%
+0.205%
+0.166%
+0.128%
+0.290%
+0.242%
+0.194%
+0.302%
+0.264%
+0.227%
+0.455%
+0.418%
+0.381%
+0.614%
+0.497%
+0.380%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

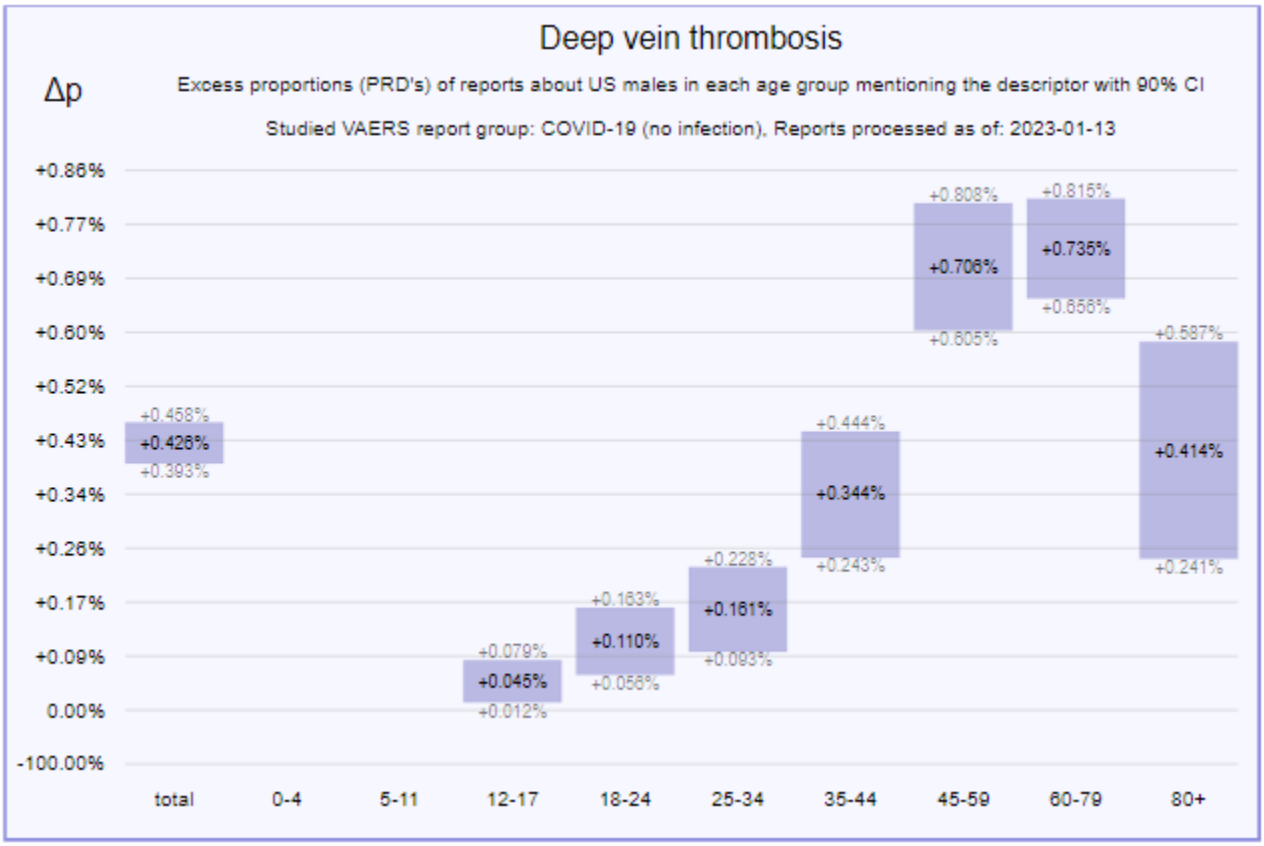
5.2.2.2 Thrombosis

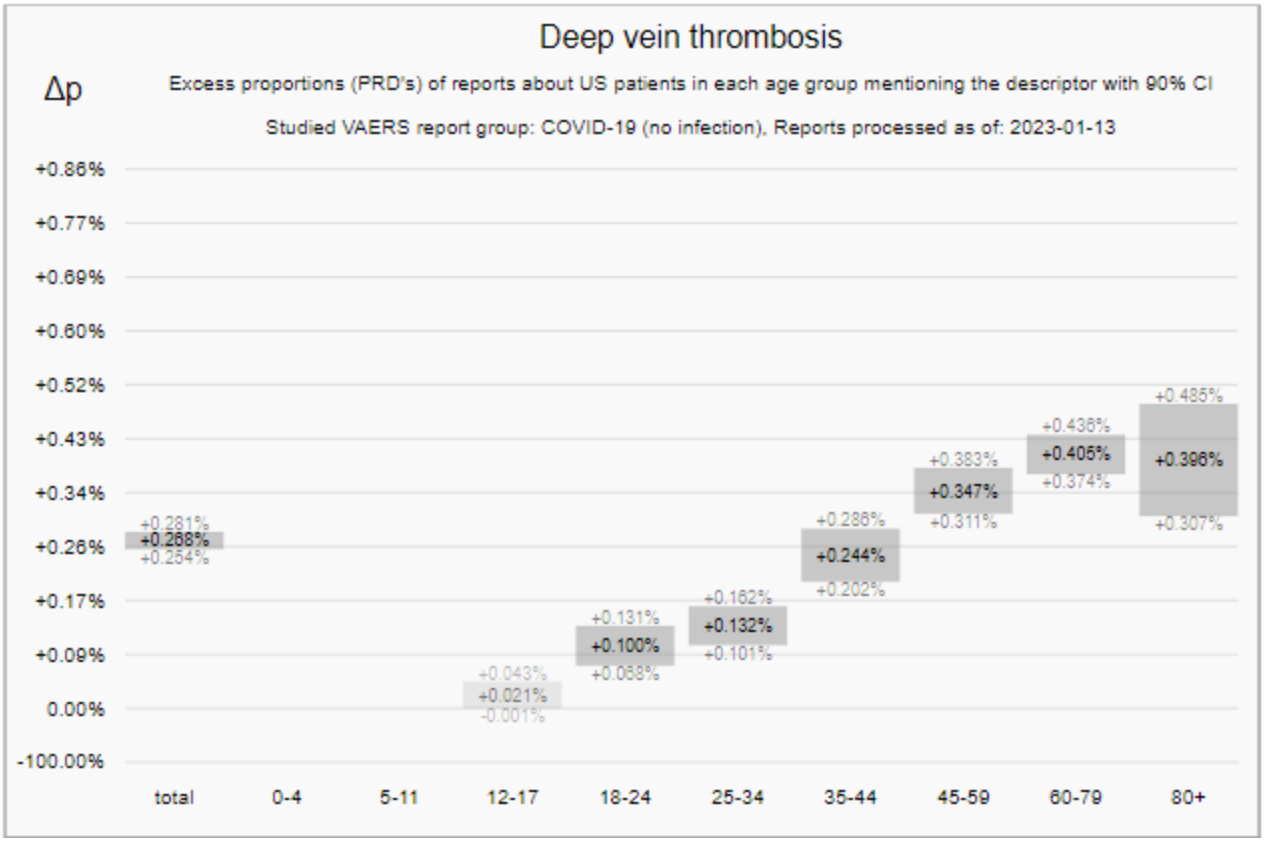



Thrombosis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.92%
+0.83%
+0.74%
+0.64%
+0.55%
+0.46%
+0.37%
+0.28%
+0.18%
+0.09%
0.00%
-100.00%
+0.432%
+0.415%
+0.397%
+0.140%
+0.064%
-0.013%
+0.044%
+0.022%
-0.001%
+0.086%
+0.053%
+0.021%
+0.233%
+0.184%
+0.135%
+0.375%
+0.325%
+0.276%
+0.558%
+0.499%
+0.439%
+0.547%
+0.501%
+0.456%
+0.576%
+0.540%
+0.504%
+0.768%
+0.656%
+0.544%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Thrombosis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.92%
+0.83%
+0.74%
+0.64%
+0.55%
+0.46%
+0.37%
+0.28%
+0.18%
+0.09%
0.00%
-100.00%
+0.421%
+0.399%
+0.377%
+0.173%
+0.064%
-0.044%
+0.033%
+0.008%
-0.021%
+0.112%
+0.065%
+0.019%
+0.319%
+0.253%
+0.187%
+0.435%
+0.372%
+0.310%
+0.601%
+0.529%
+0.456%
+0.491%
+0.442%
+0.393%
+0.476%
+0.437%
+0.398%
+0.835%
+0.699%
+0.564%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.2.3 Deep Vein Thrombosis




Deep vein thrombosis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.86%
+0.77%
+0.69%
+0.60%
+0.52%
+0.43%
+0.34%
+0.26%
+0.17%
+0.09%
0.00%
-100.00%
+0.281% +0.268% +0.254%
+0.043% +0.021% -0.001%
+0.131% +0.100% +0.068%
+0.162% +0.132% +0.101%
+0.286% +0.244% +0.202%
+0.383% +0.347% +0.311%
+0.436% +0.405% +0.374%
+0.485% +0.396% +0.307%
total
0-4
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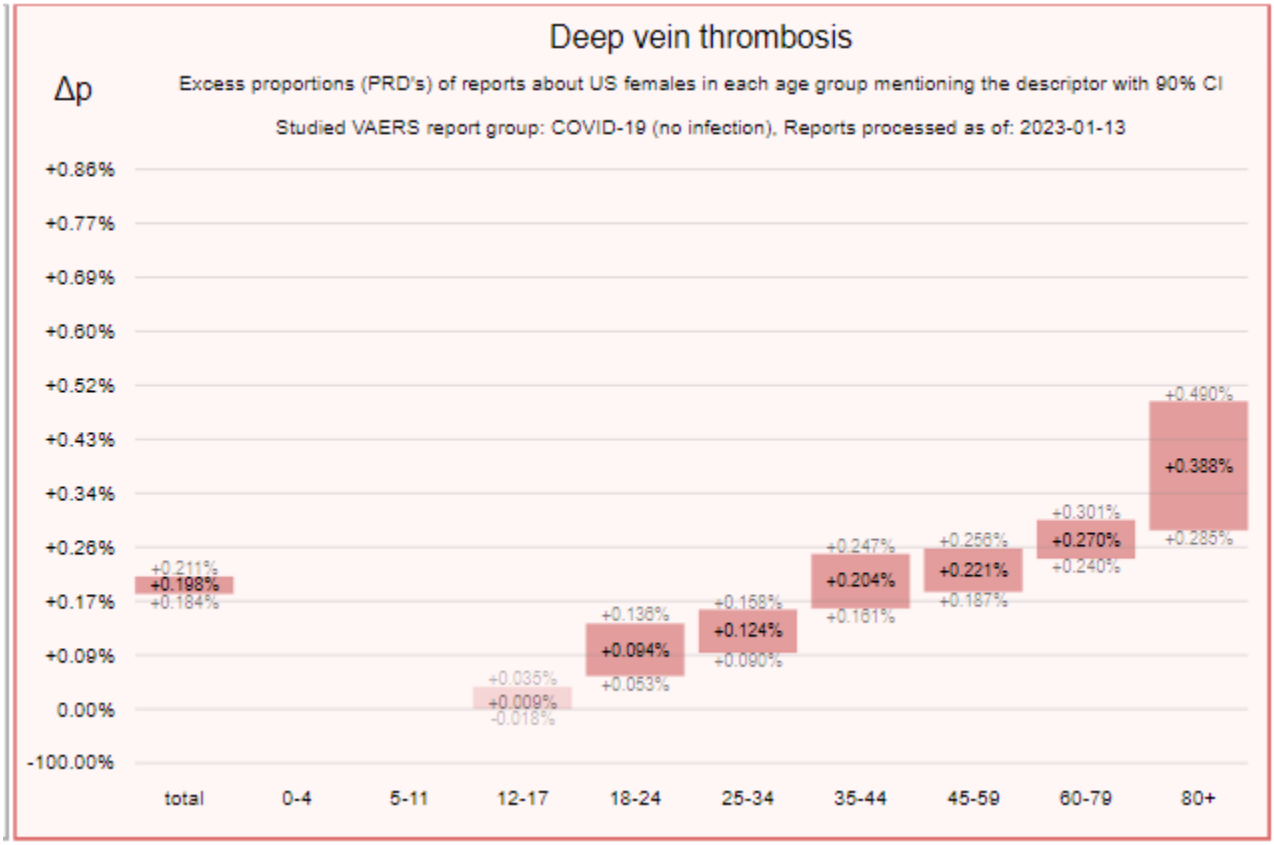
12-17
18-24
25-34
35-44
45-59
60-79
80+


Deep vein thrombosis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.86%
+0.77%
+0.69%
+0.60%
+0.52%
+0.43%
+0.34%
+0.26%
+0.17%
+0.09%
0.00%
-100.00%
+0.211% +0.198% +0.184%
+0.035% +0.009% -0.018%
+0.136% +0.094% +0.053%
+0.158% +0.124% +0.090%
+0.247% +0.204% +0.161%
+0.256% +0.221% +0.187%
+0.301% +0.270% +0.240%
+0.490% +0.388% +0.285%
total
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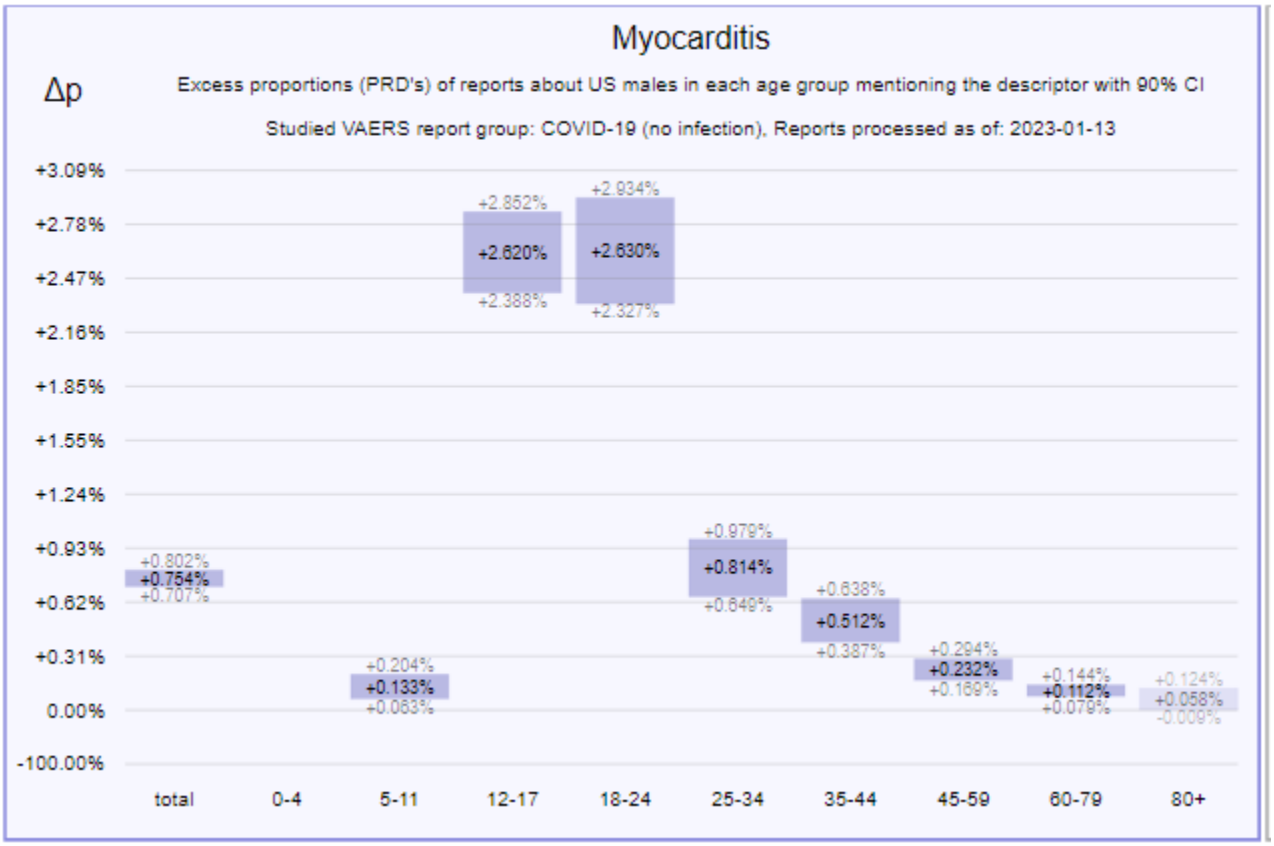
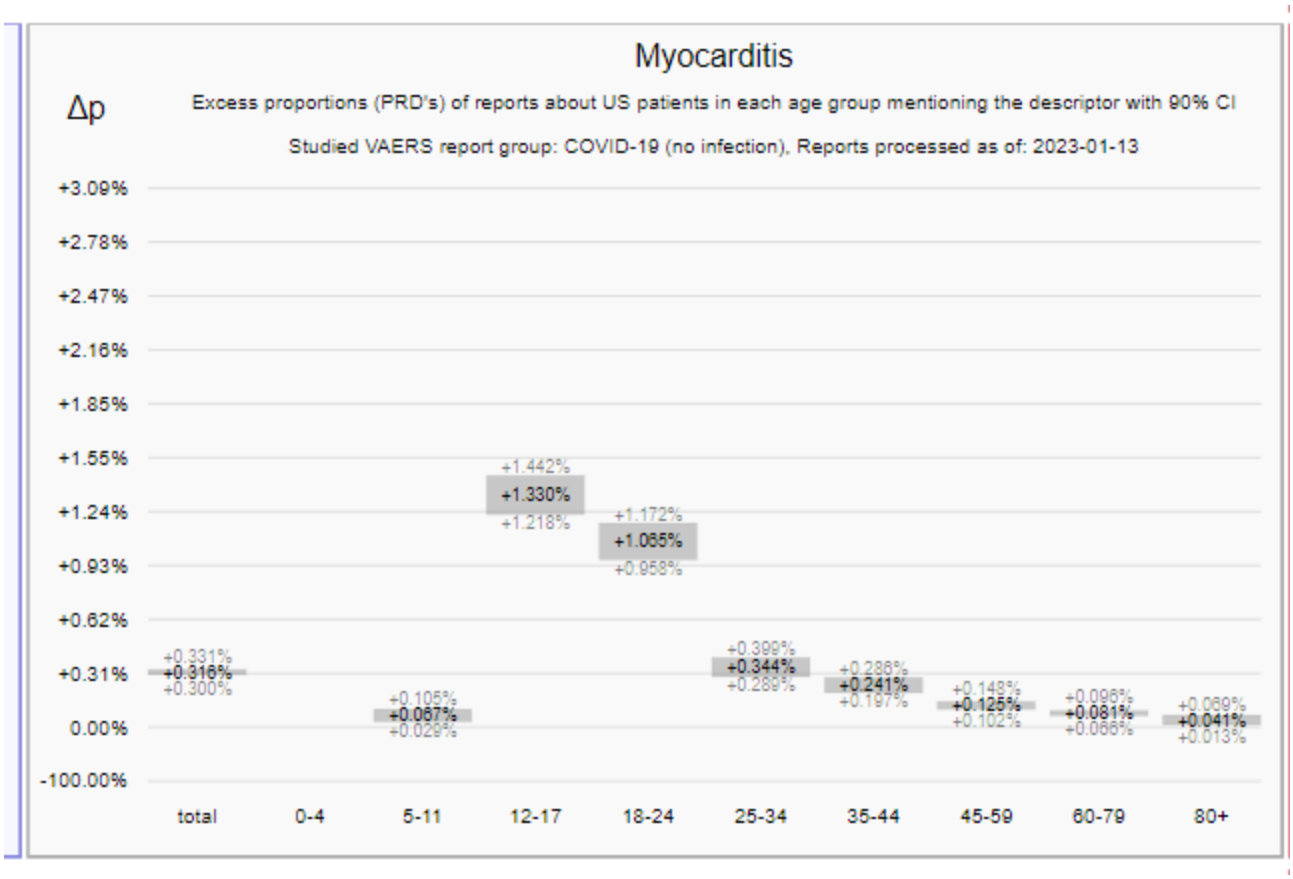
60-79
80+

5.2.2.4 Myocarditis




Myocarditis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.09%
+2.78%
+2.47%
+2.16%
+1.85%
+1.55%
+1.24%
+0.93%
+0.62%
+0.31%
0.00%
-100.00%
+0.331%
+0.316%
+0.300%
+0.105%
+0.067%
+0.029%
+1.442%
+1.330%
+1.218%
+1.172%
+1.065%
+0.958%
+0.399%
+0.344%
+0.289%
+0.286%
+0.241%
+0.197%
+0.148%
+0.125%
+0.102%
+0.096%
+0.081%
+0.066%
+0.069%
+0.041%
+0.013%
total
0-4
5-11
12-17
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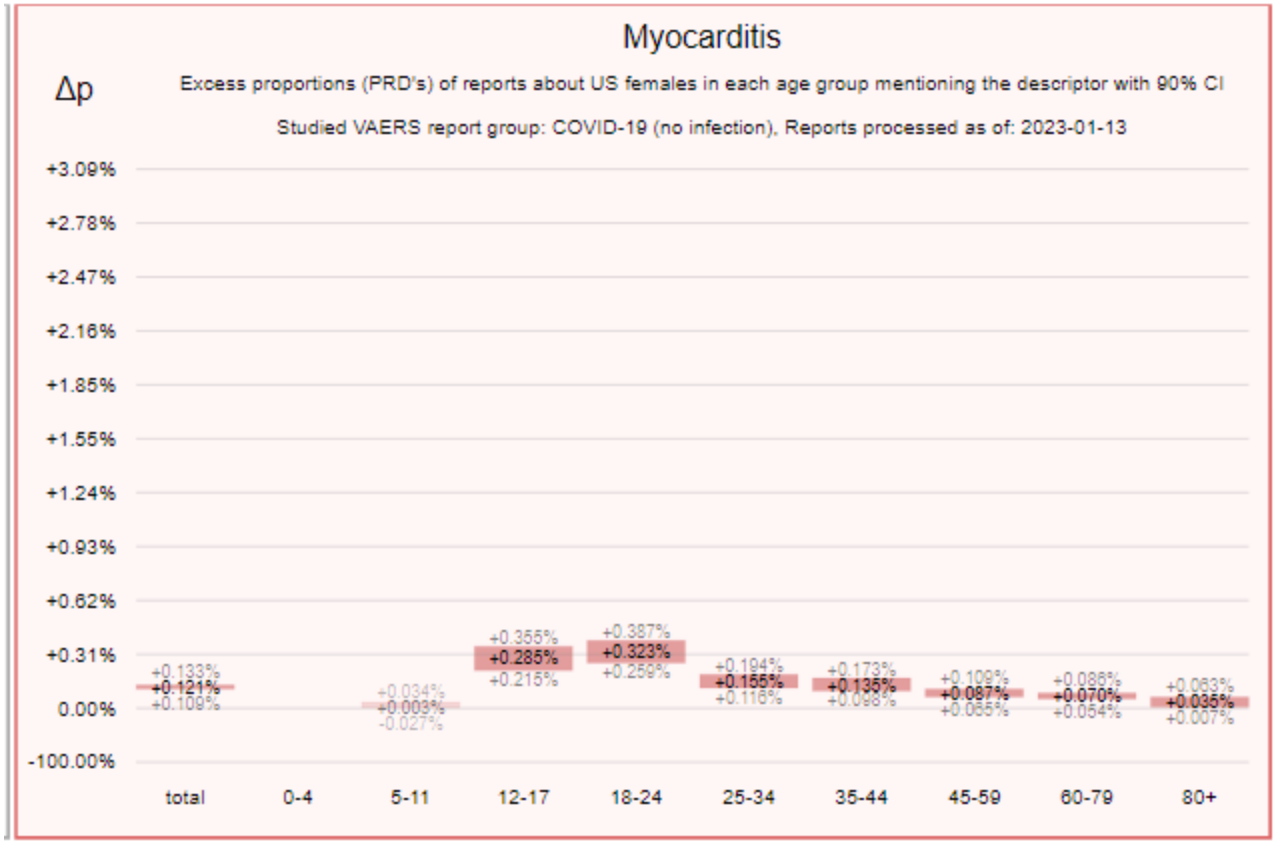
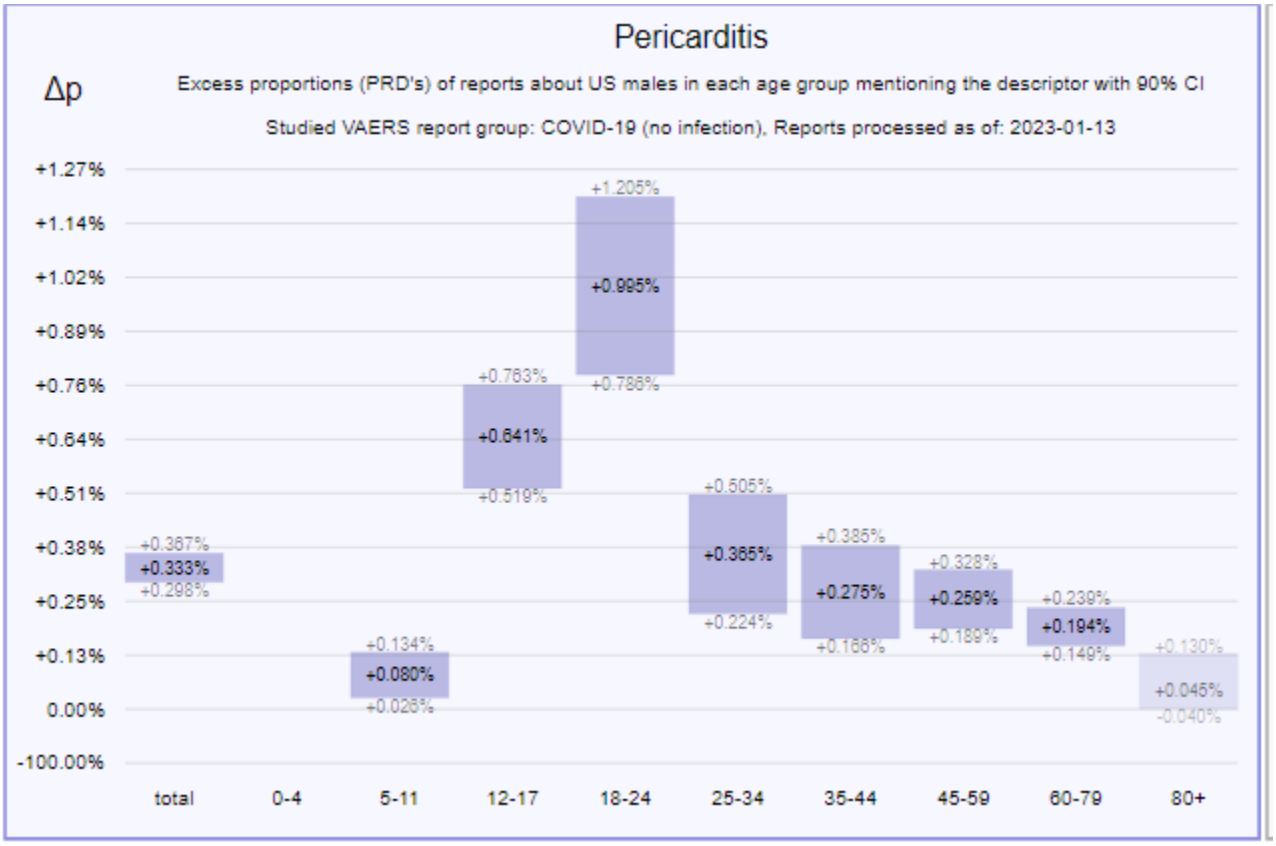
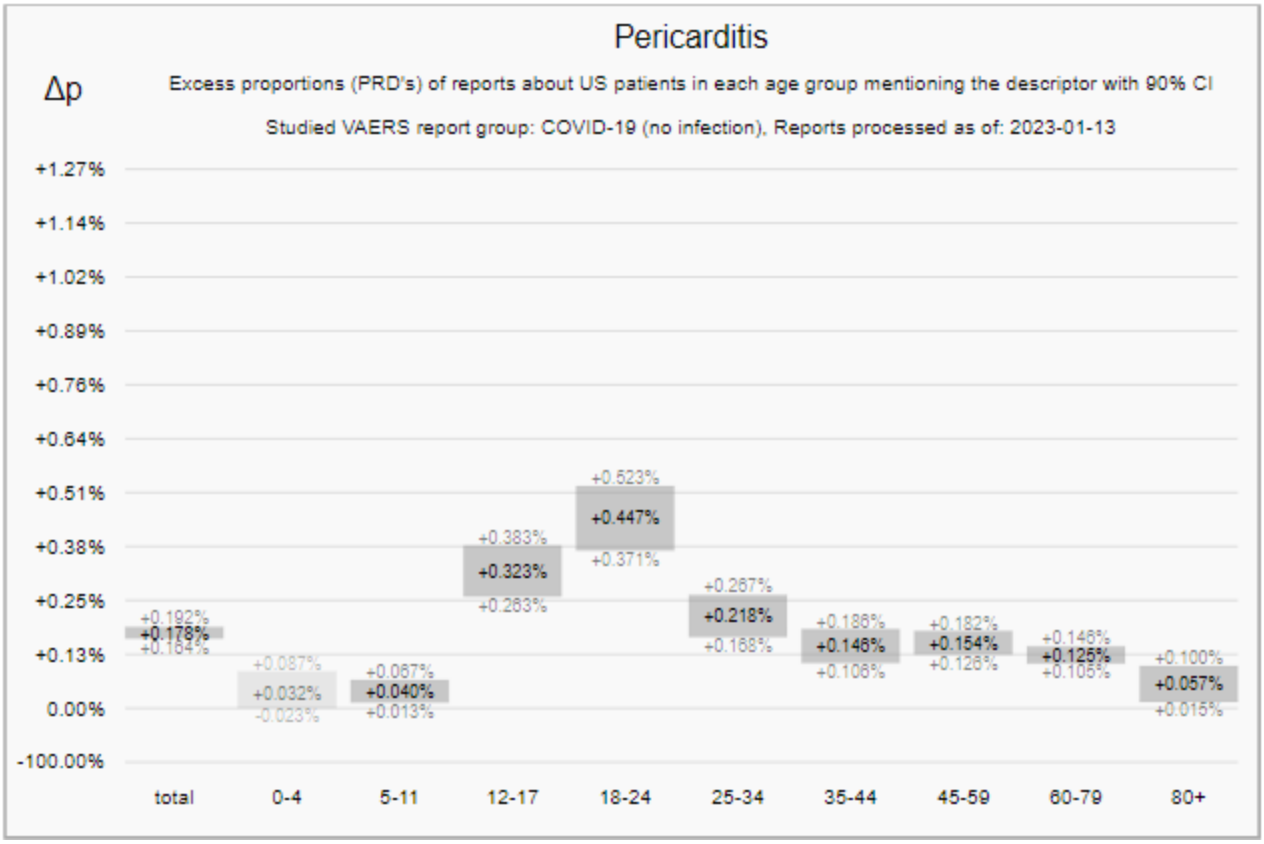
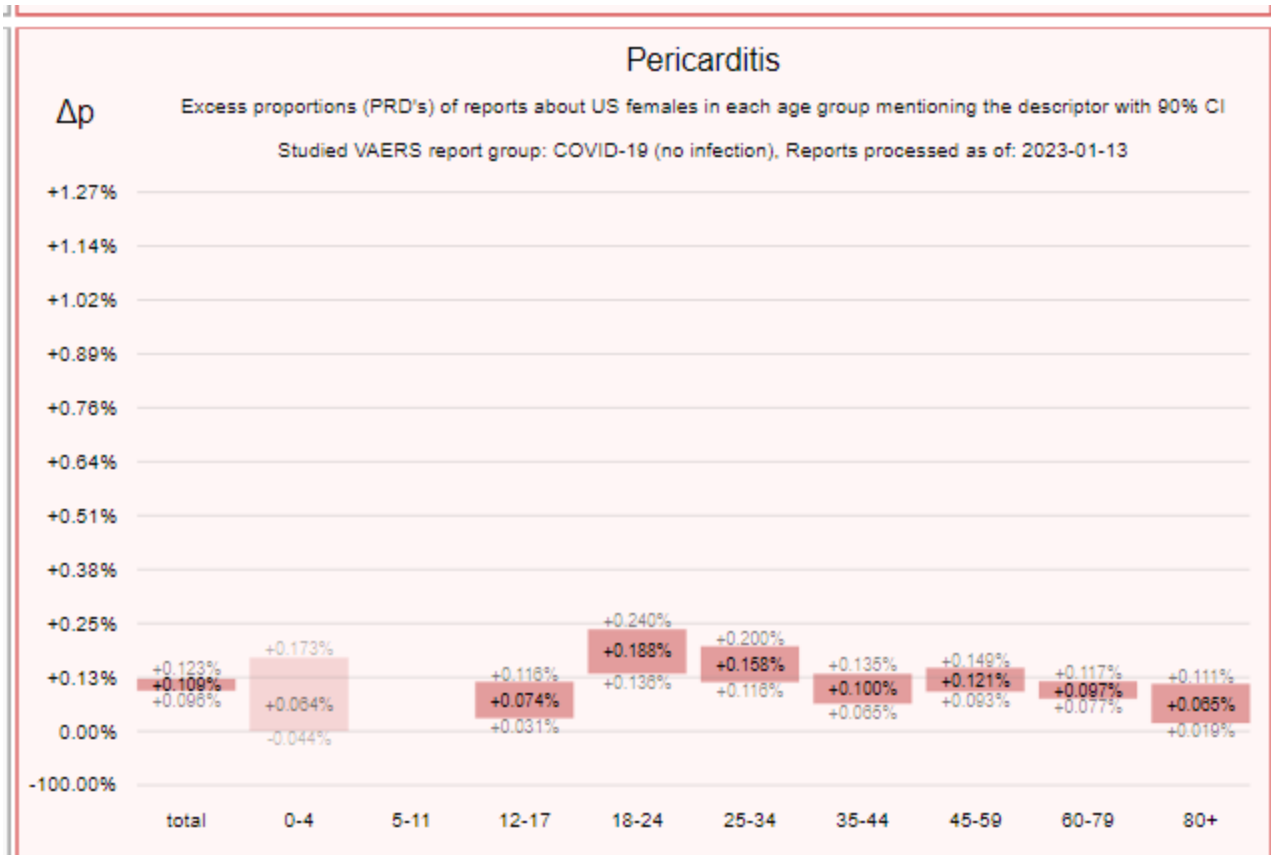
35-44
45-59
60-79
80+


Myocarditis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.09%
+2.78%
+2.47%
+2.16%
+1.85%
+1.55%
+1.24%
+0.93%
+0.62%
+0.31%
0.00%
-100.00%
+0.133%
+0.121%
+0.109%
+0.034%
+0.003%
-0.027%
+0.355%
+0.285%
+0.215%
+0.387%
+0.323%
+0.259%
+0.194%
+0.155%
+0.116%
+0.173%
+0.135%
+0.098%
+0.109%
+0.087%
+0.065%
+0.086%
+0.070%
+0.054%
+0.063%
+0.035%
+0.007%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

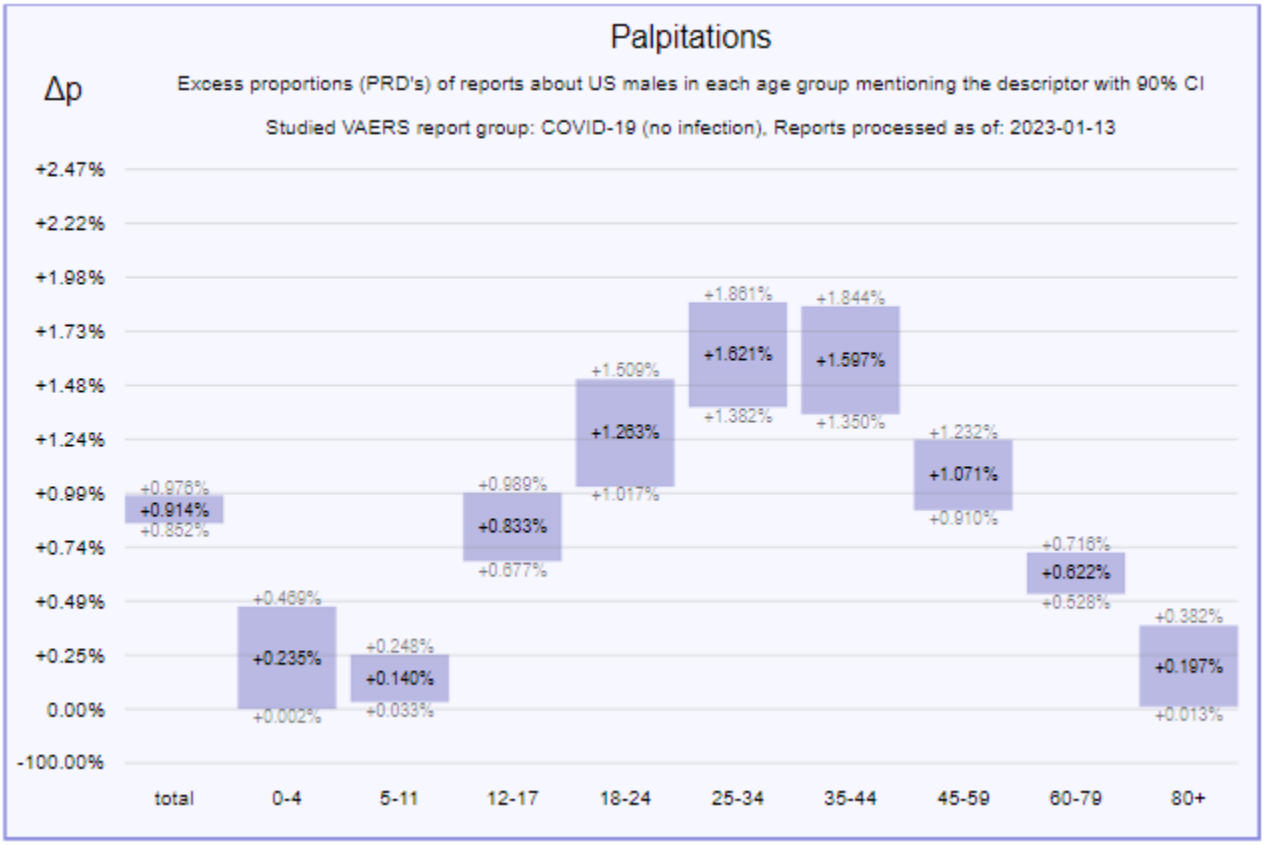
5.2.2.5 Pericarditis

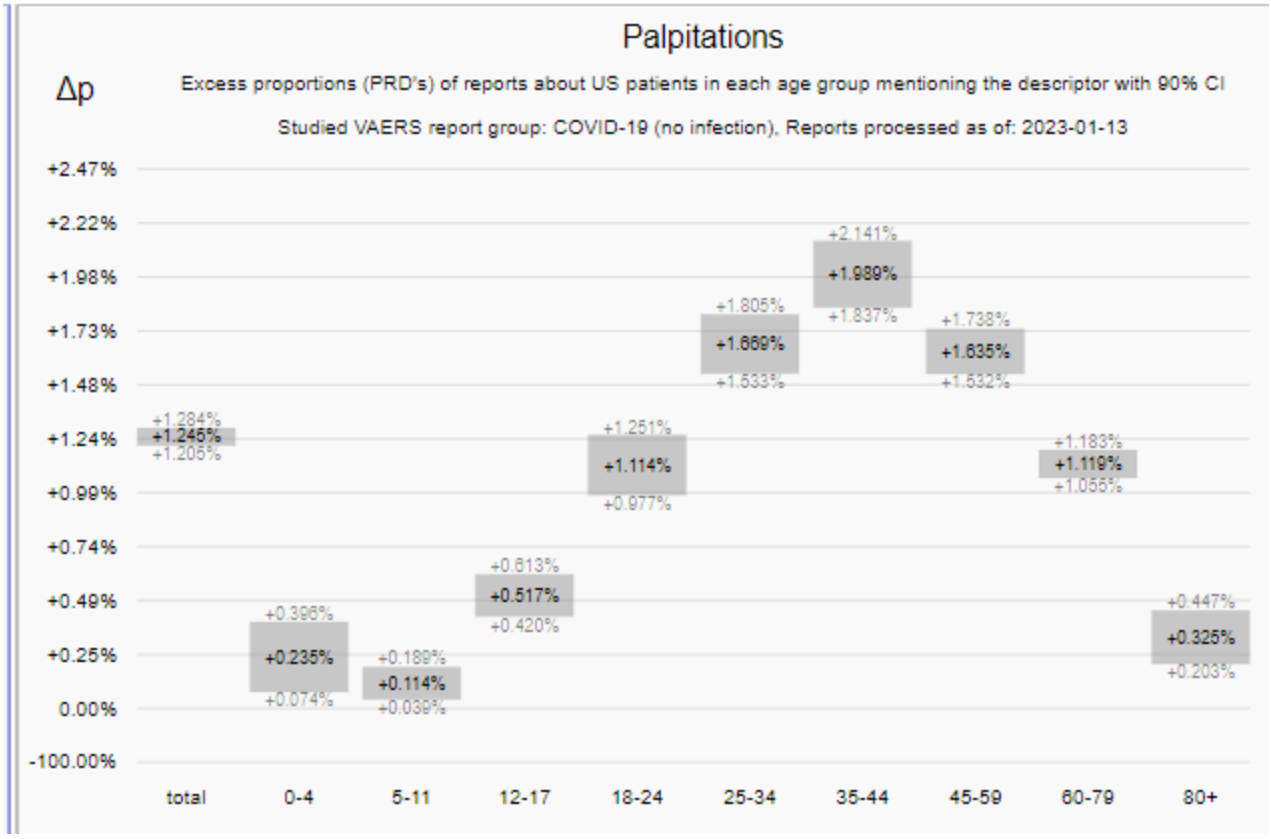


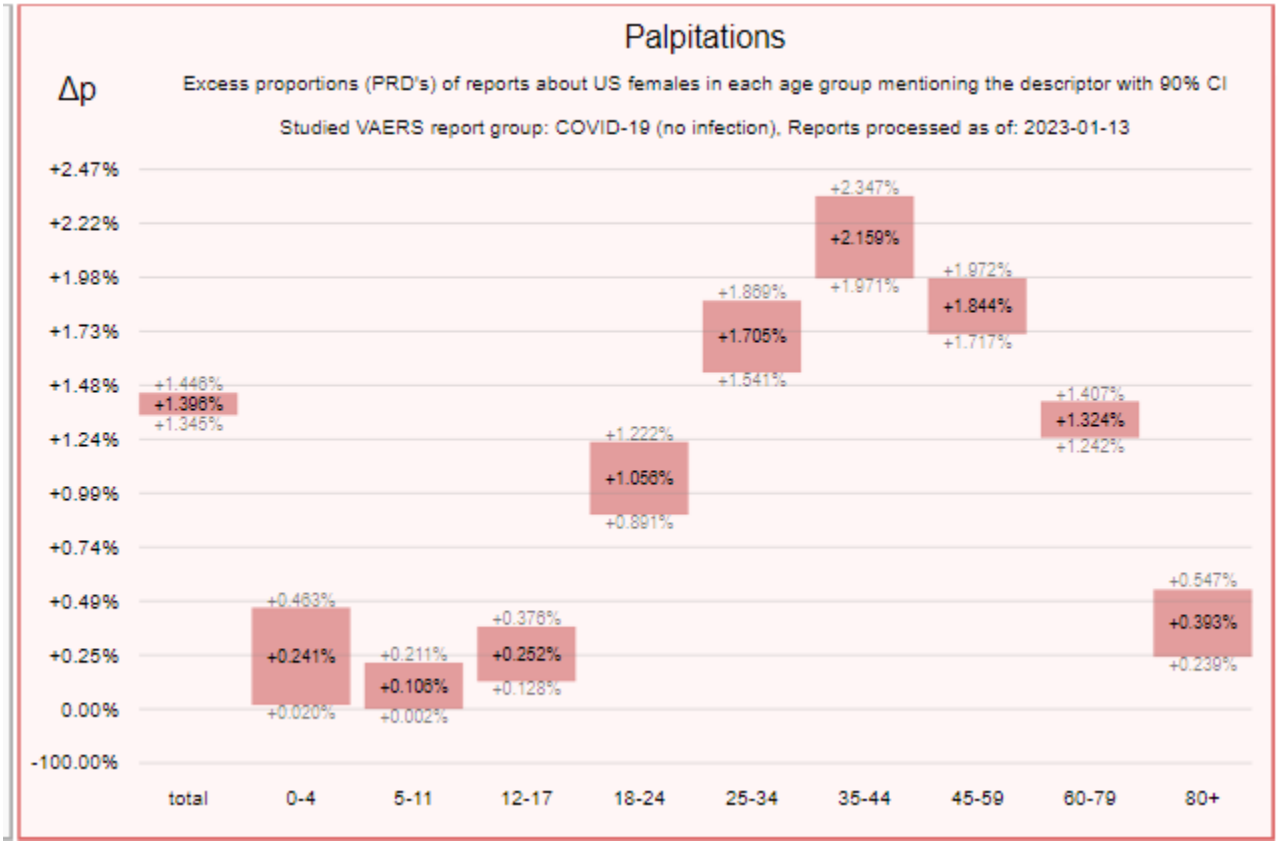

Pericarditis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.27%
+1.14%
+1.02%
+0.89%
+0.76%
+0.64%
+0.51%
+0.38%
+0.25%
+0.13%
0.00%
-100.00%
+0.192%
+0.178%
+0.164%
+0.087%
+0.032%
-0.023%
+0.067%
+0.040%
+0.013%
+0.383%
+0.323%
+0.263%
+0.523%
+0.447%
+0.371%
+0.267%
+0.218%
+0.168%
+0.186%
+0.146%
+0.106%
+0.182%
+0.154%
+0.126%
+0.146%
+0.125%
+0.105%
+0.100%
+0.057%
+0.015%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

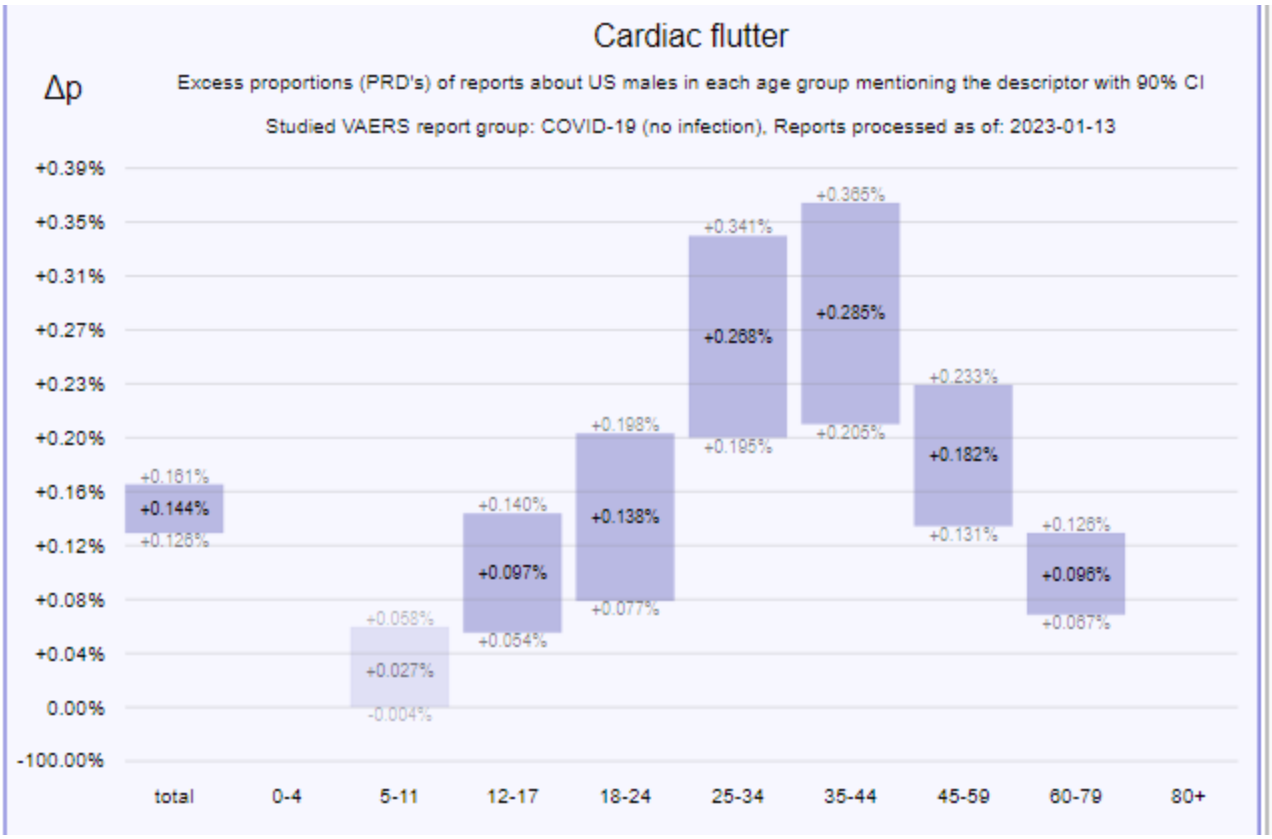

Pericarditis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.27%
+1.14%
+1.02%
+0.89%
+0.76%
+0.64%
+0.51%
+0.38%
+0.25%
+0.13%
0.00%
-100.00%
+0.123%
+0.109%
+0.096%
+0.173%
+0.064%
-0.044%
+0.116%
+0.074%
+0.031%
+0.240%
+0.188%
+0.136%
+0.200%
+0.158%
+0.116%
+0.135%
+0.100%
+0.065%
+0.149%
+0.121%
+0.093%
+0.117%
+0.097%
+0.077%
+0.111%
+0.065%
+0.019%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

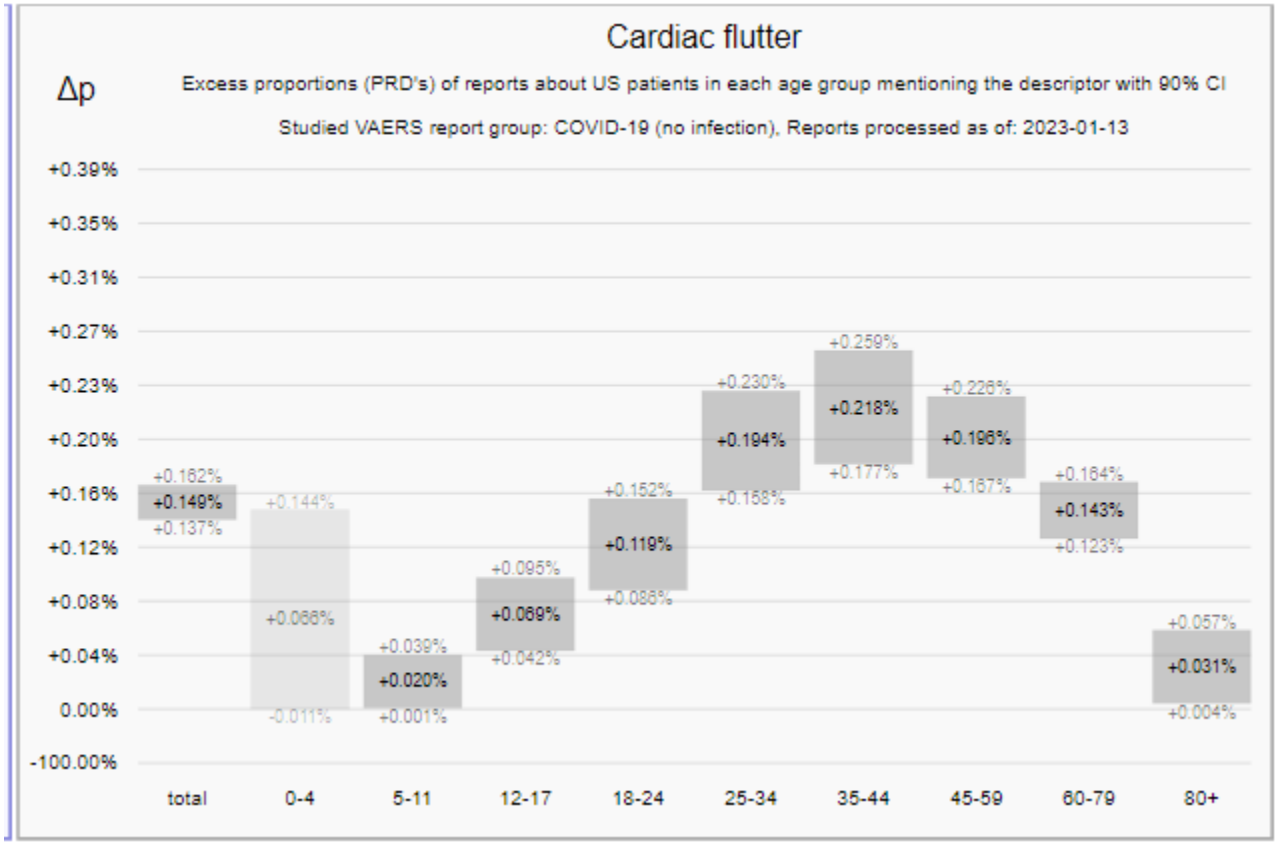
5.2.2.6 Palpitations

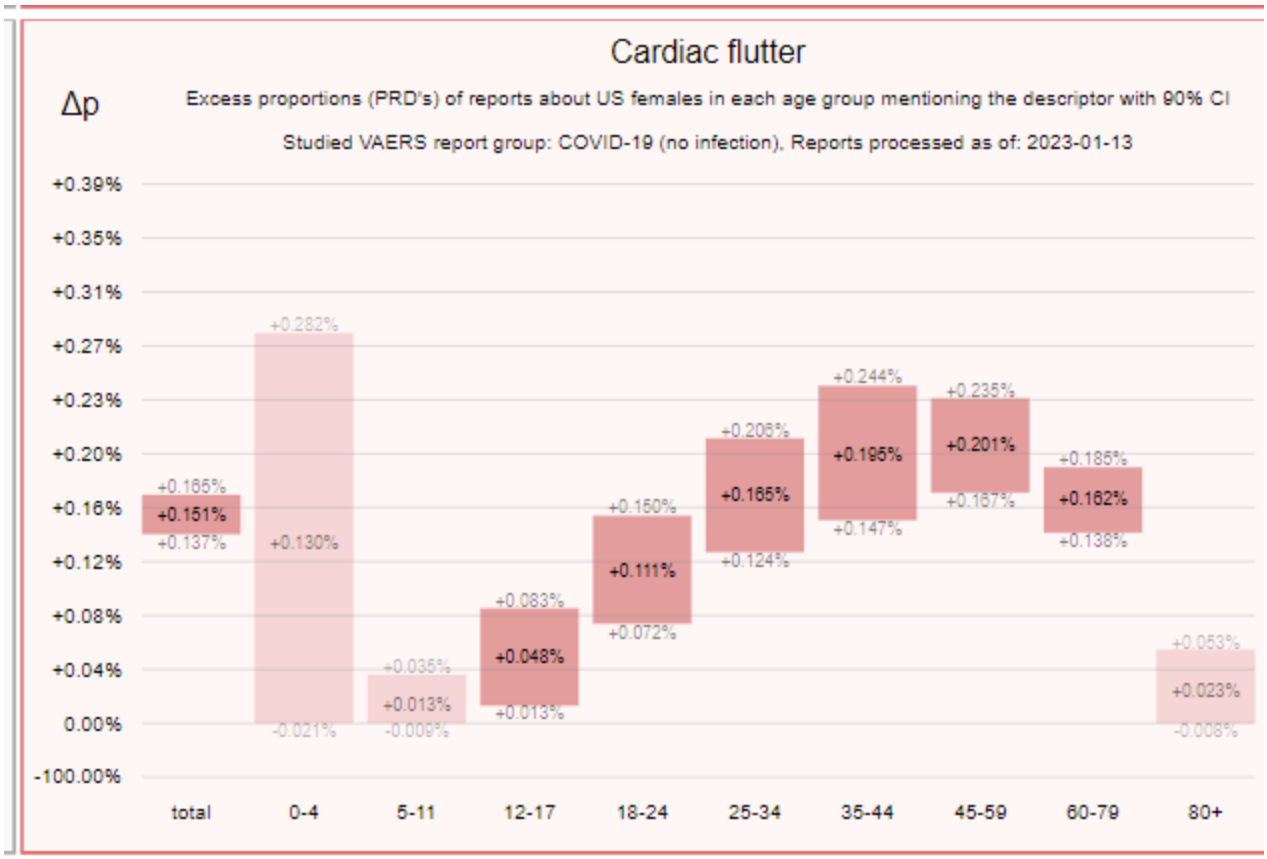



Palpitations
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.47%
+2.22%
+1.98%
+1.73%
+1.48%
+1.24%
+0.99%
+0.74%
+0.49%
+0.25%
0.00%
-100.00%
+1.284% +1.245% +1.206%
+0.396% +0.235% +0.074%
+0.189% +0.114% +0.039%
+0.613% +0.517% +0.420%
+1.251% +1.114% +0.977%
+1.805% +1.669% +1.533%
+2.141% +1.989% +1.837%
+1.738% +1.635% +1.532%
+1.183% +1.119% +1.055%
+0.447% +0.325% +0.203%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

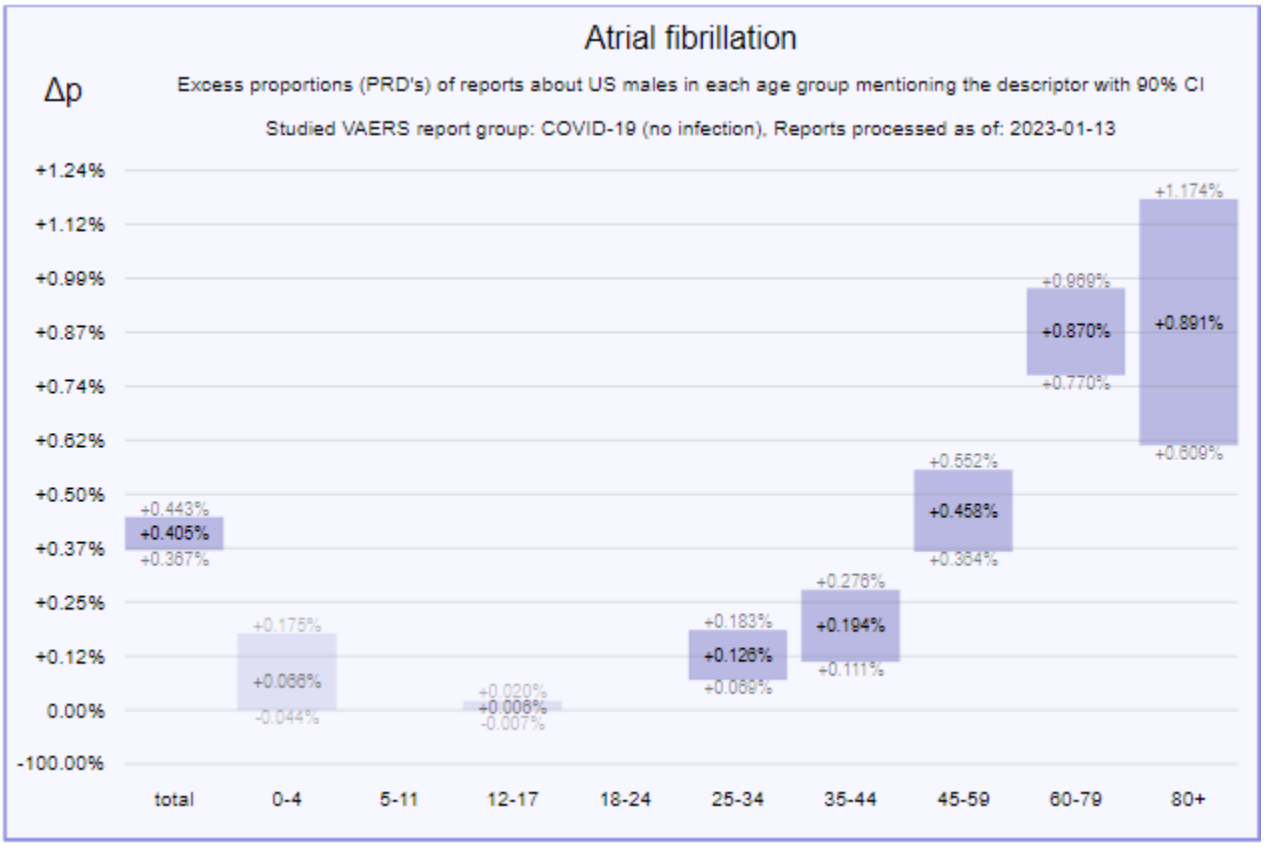

Palpitations
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.47%
+2.22%
+1.98%
+1.73%
+1.48%
+1.24%
+0.99%
+0.74%
+0.49%
+0.25%
0.00%
-100.00%
+1.446% +1.396% +1.345%
+0.463% +0.241% +0.020%
+0.211% +0.106% +0.002%
+0.376% +0.252% +0.128%
+1.222% +1.056% +0.891%
+1.869% +1.705% +1.541%
+2.347% +2.159% +1.971%
+1.972% +1.844% +1.717%
+1.407% +1.324% +1.242%
+0.547% +0.393% +0.239%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

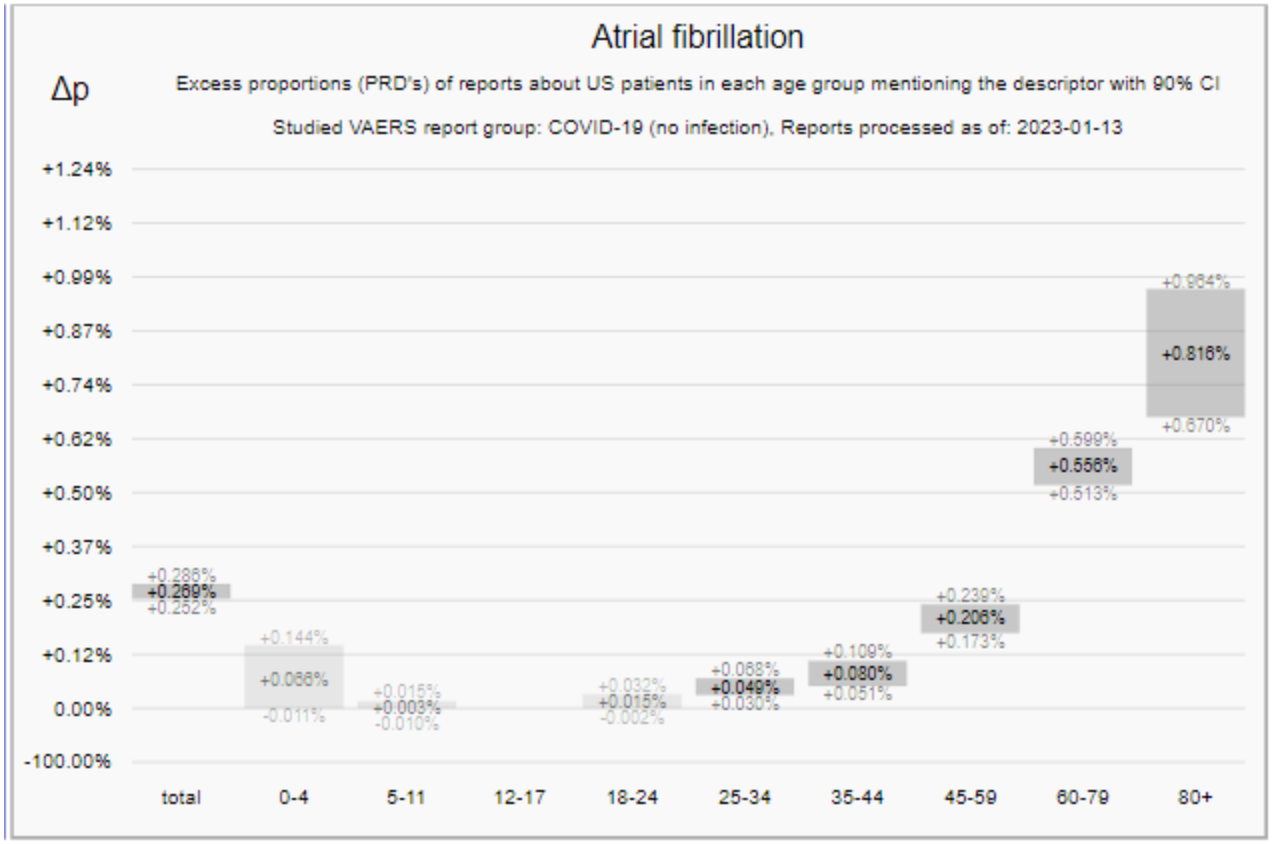

Cardiac flutter
Δp
Excess proportions (PRD's) of reports about US males in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.39%
+0.35%
+0.31%
+0.27%
+0.23%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.161%
+0.144%
+0.128%
+0.058%
+0.027%
-0.004%
+0.140%
+0.097%
+0.054%
+0.198%
+0.138%
+0.077%
+0.341%
+0.268%
+0.195%
+0.365%
+0.285%
+0.205%
+0.233%
+0.182%
+0.131%
+0.126%
+0.096%
+0.067%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

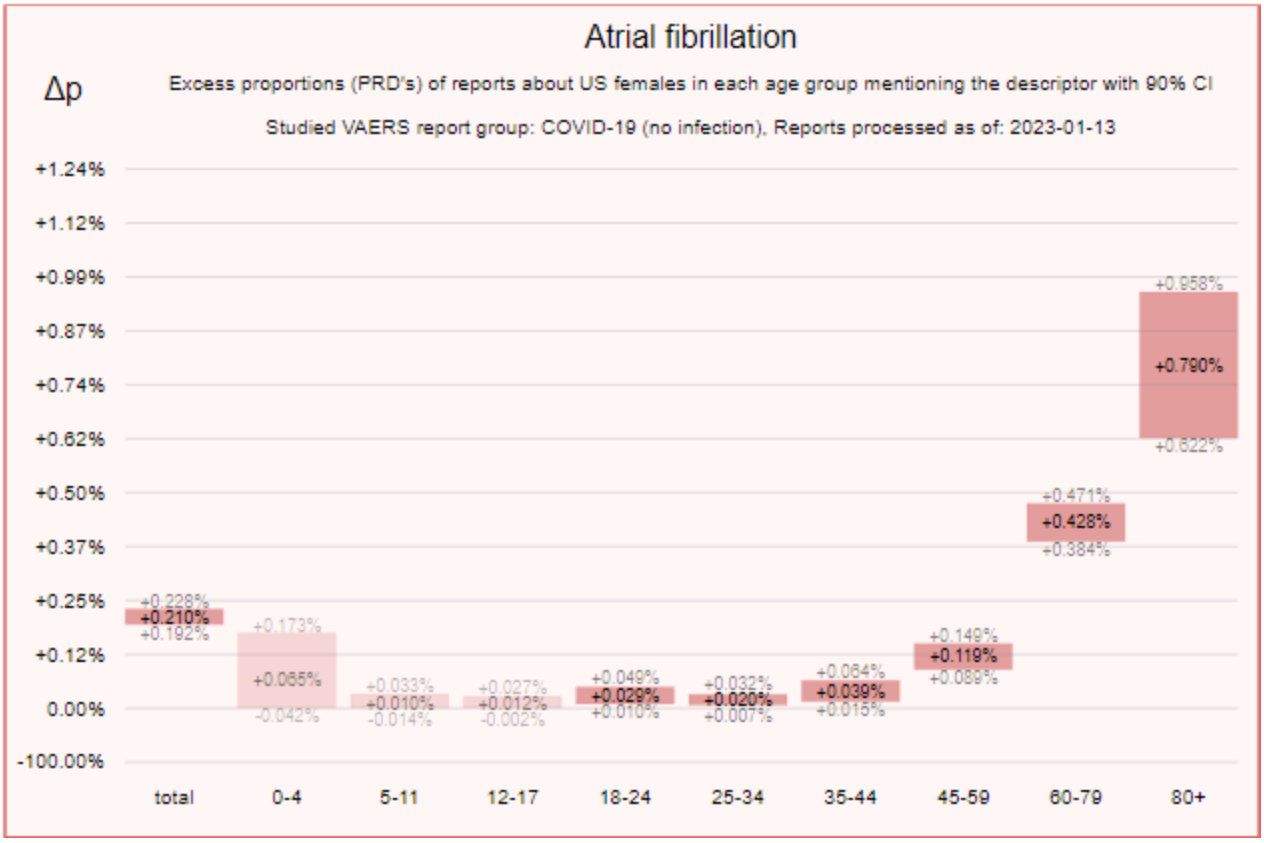

Cardiac flutter
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.39%
+0.35%
+0.31%
+0.27%
+0.23%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.162%
+0.149%
+0.137%
+0.144%
+0.066%
-0.011%
+0.039%
+0.020%
+0.001%
+0.095%
+0.069%
+0.042%
+0.152%
+0.119%
+0.086%
+0.230%
+0.194%
+0.158%
+0.259%
+0.218%
+0.177%
+0.226%
+0.196%
+0.167%
+0.164%
+0.143%
+0.123%
+0.057%
+0.031%
+0.004%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Cardiac flutter
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.39%
+0.35%
+0.31%
+0.27%
+0.23%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.165%
+0.151%
+0.137%
+0.282%
+0.130%
-0.021%
+0.035%
+0.013%
-0.009%
+0.083%
+0.048%
+0.013%
+0.160%
+0.111%
+0.072%
+0.206%
+0.165%
+0.124%
+0.244%
+0.195%
+0.147%
+0.235%
+0.201%
+0.167%
+0.185%
+0.162%
+0.138%
+0.053%
+0.023%
-0.008%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

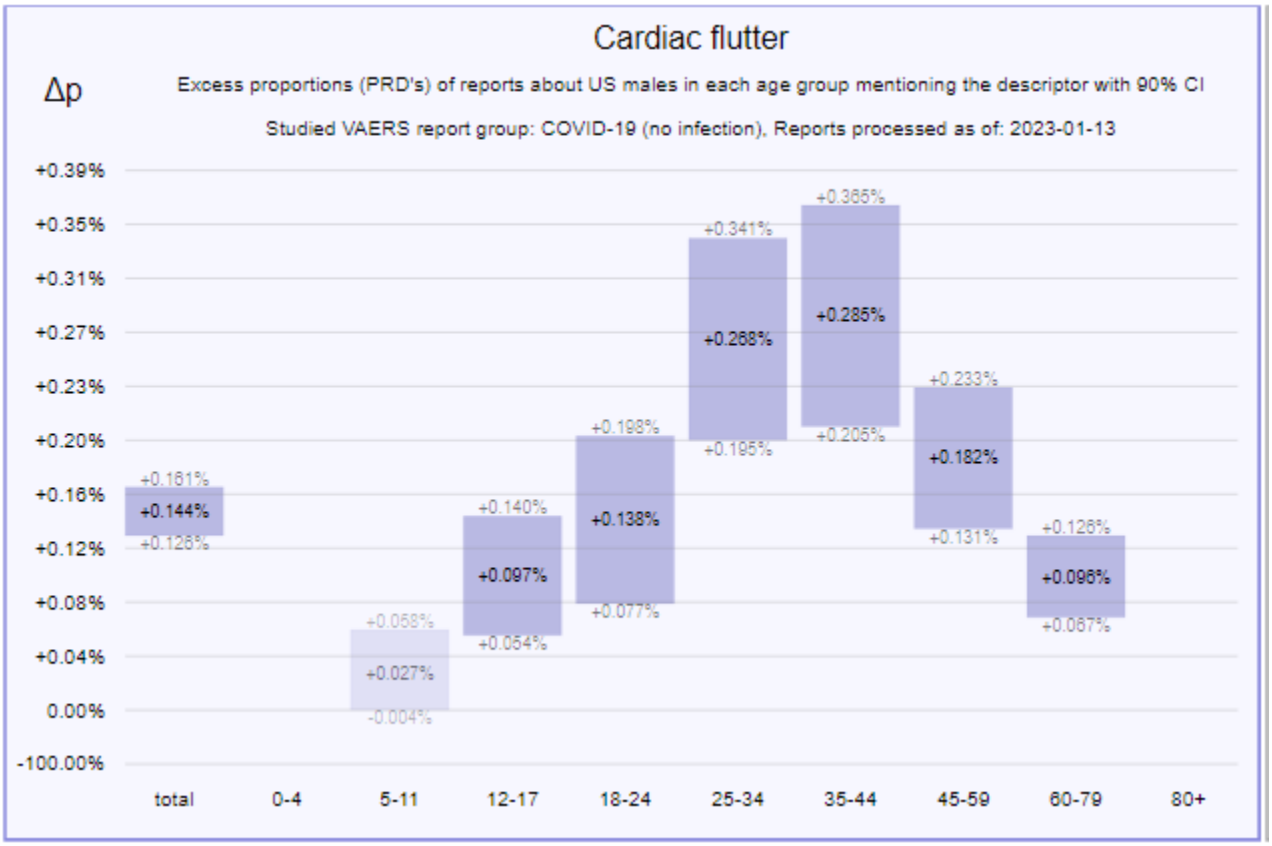
5.2.2.7 Atrial Fibrillation

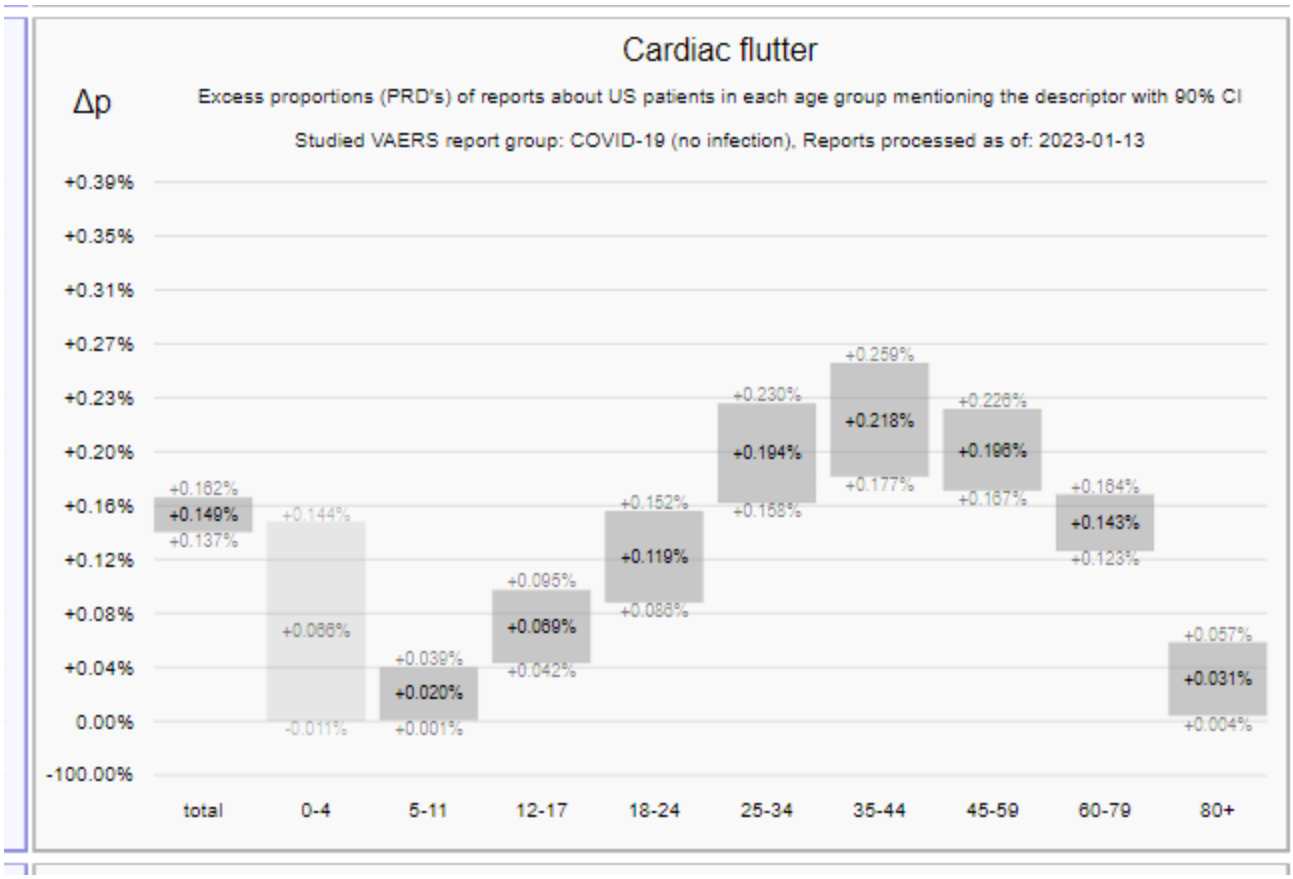


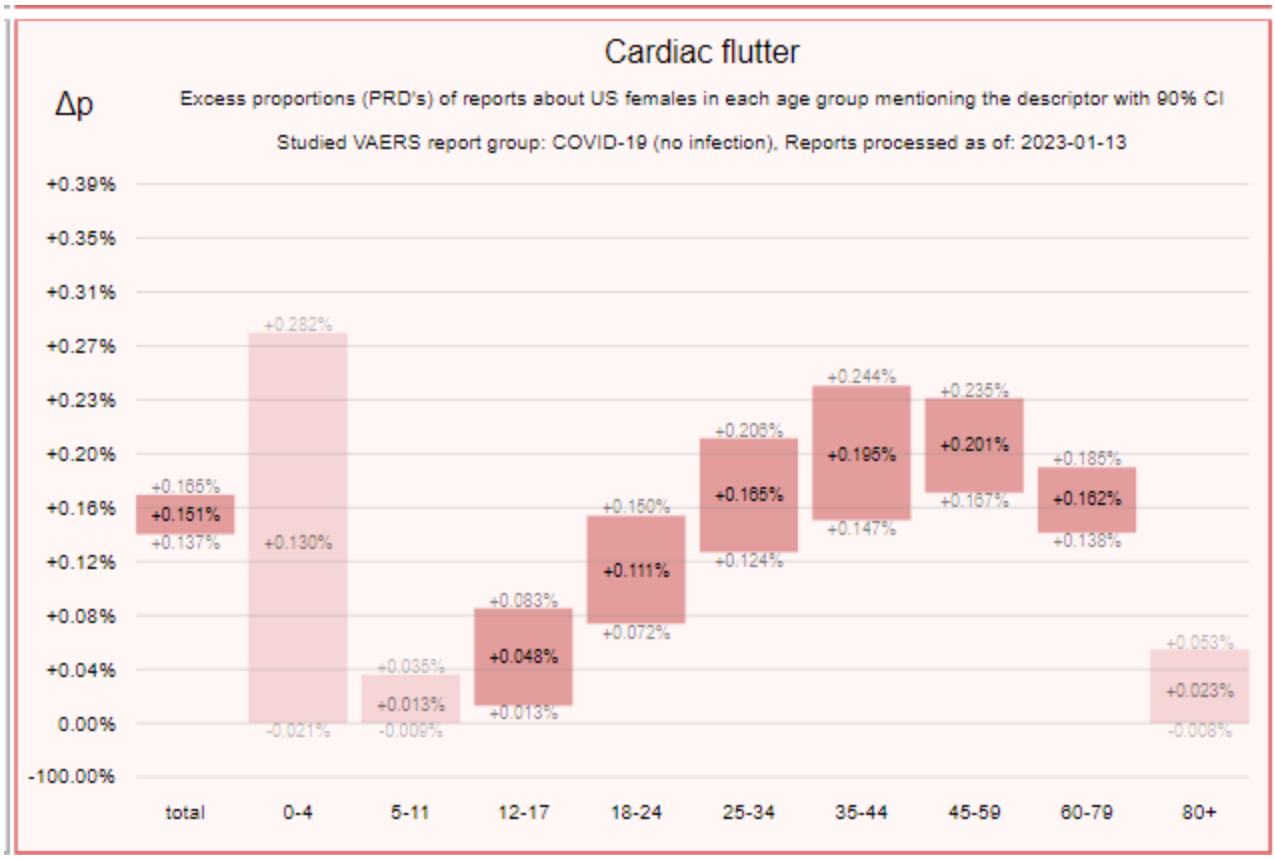

Atrial fibrillation
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.24%
+1.12%
+0.99%
+0.87%
+0.74%
+0.62%
+0.50%
+0.37%
+0.25%
+0.12%
0.00%
-100.00%
+0.288%
+0.269%
+0.252%
+0.144%
+0.066%
-0.011%
+0.015%
+0.003%
-0.010%
+0.032%
+0.015%
-0.002%
+0.068%
+0.049%
+0.030%
+0.109%
+0.080%
+0.051%
+0.239%
+0.206%
+0.173%
+0.599%
+0.556%
+0.513%
+0.864%
+0.816%
+0.670%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Atrial fibrillation
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.24%
+1.12%
+0.99%
+0.87%
+0.74%
+0.62%
+0.50%
+0.37%
+0.25%
+0.12%
0.00%
-100.00%
+0.228%
+0.210%
+0.192%
+0.173%
+0.065%
-0.042%
+0.033%
+0.010%
-0.014%
+0.027%
+0.012%
-0.002%
+0.049%
+0.029%
+0.010%
+0.032%
+0.020%
+0.007%
+0.064%
+0.039%
+0.015%
+0.149%
+0.119%
+0.089%
+0.471%
+0.428%
+0.384%
+0.958%
+0.790%
+0.622%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

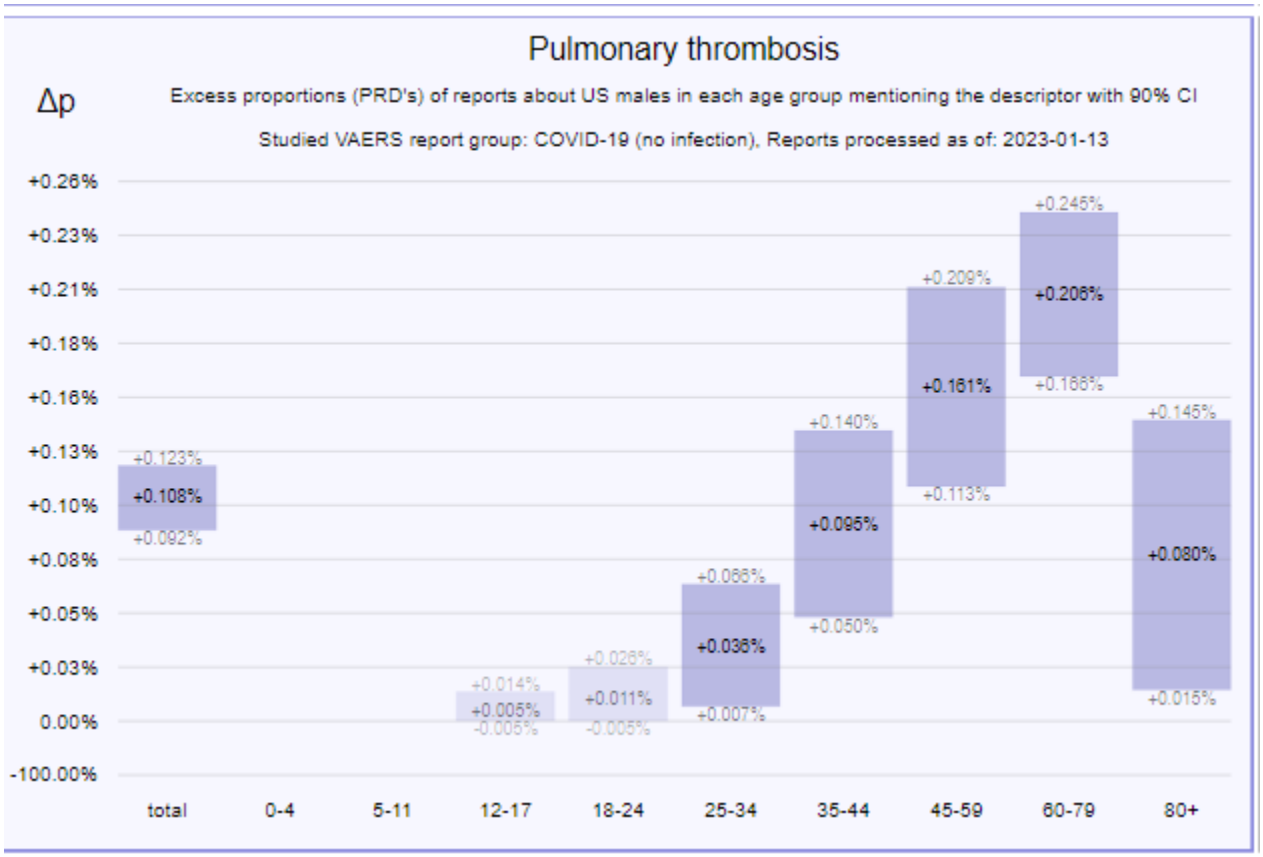
5.2.2.8 Cardiac Flutter

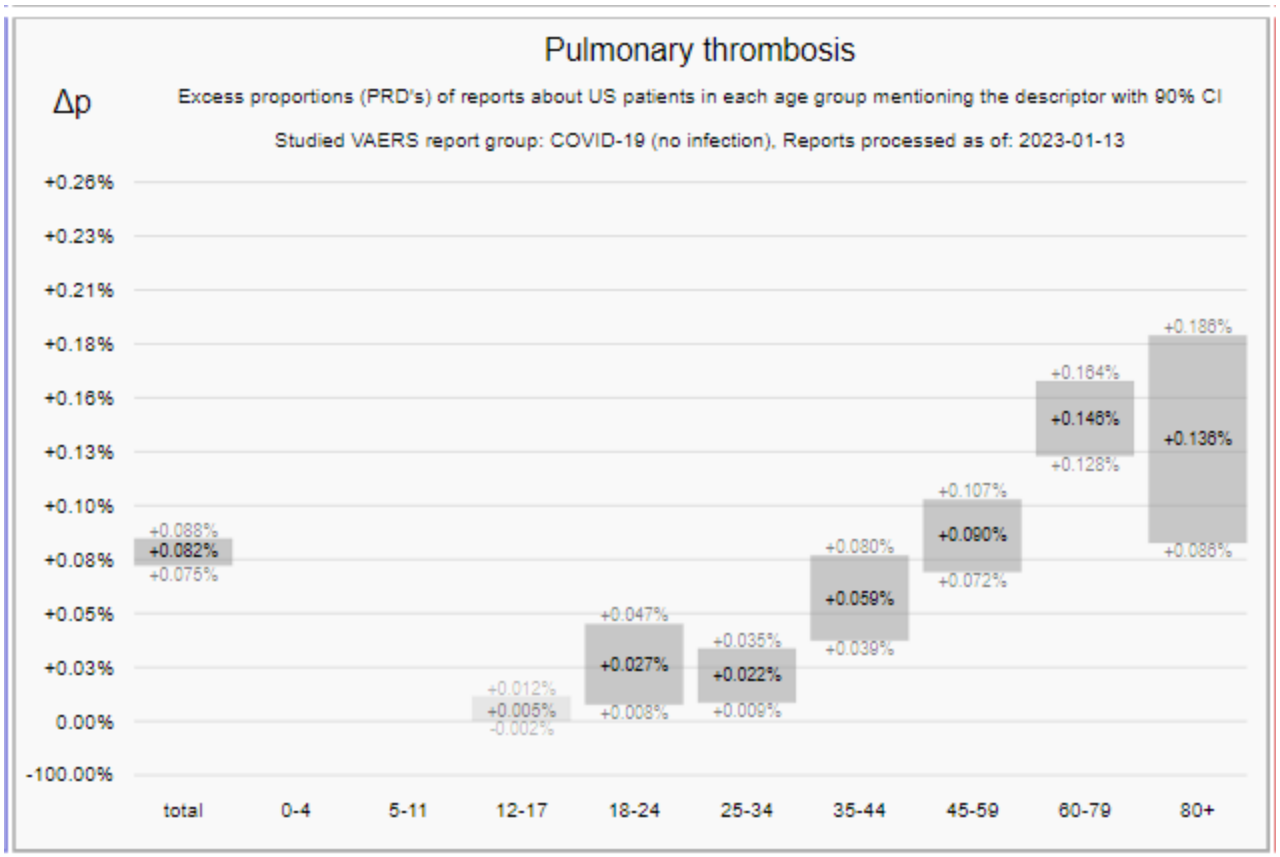


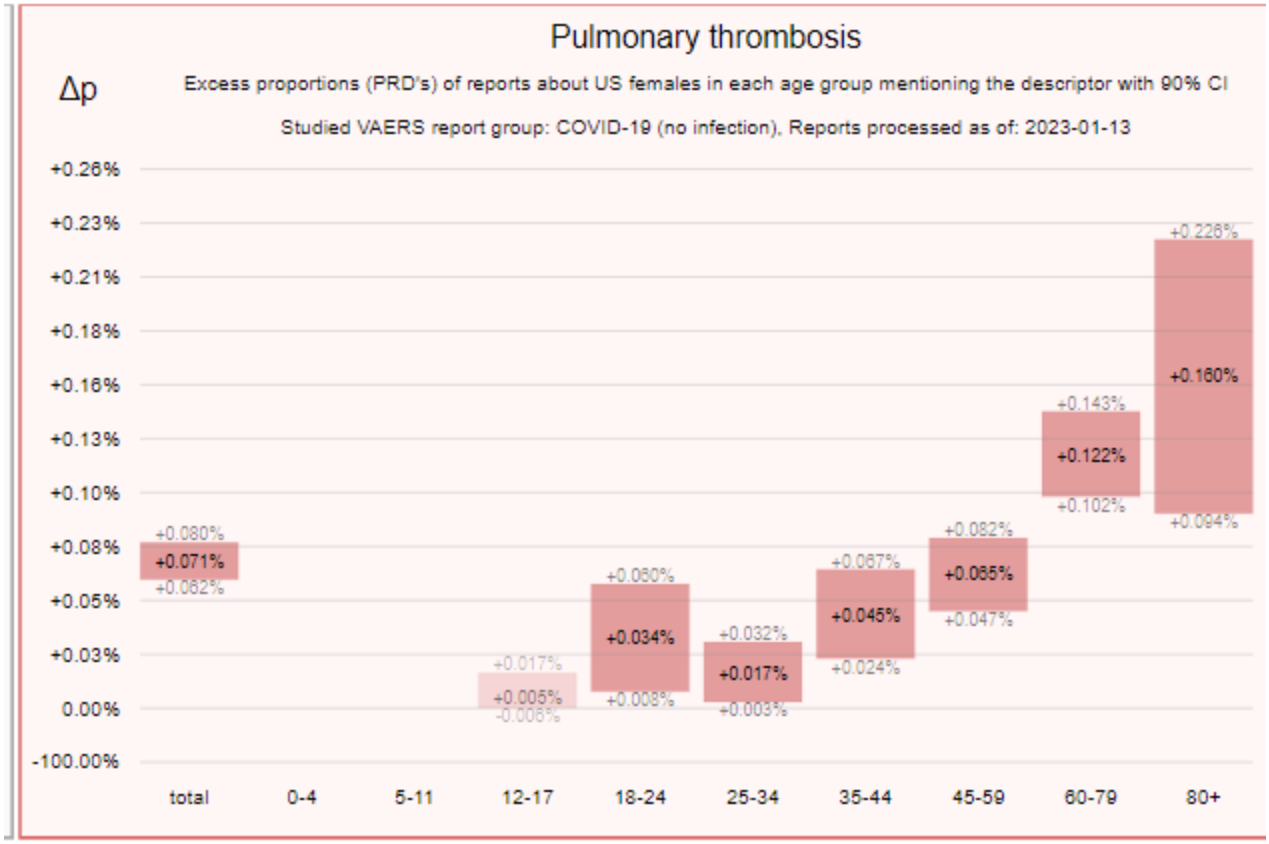

Cardiac flutter
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.39%
+0.35%
+0.31%
+0.27%
+0.23%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.162%
+0.149%
+0.137%
+0.144%
+0.066%
-0.011%
+0.039%
+0.020%
+0.001%
+0.095%
+0.069%
+0.042%
+0.152%
+0.119%
+0.086%
+0.230%
+0.194%
+0.158%
+0.259%
+0.218%
+0.177%
+0.226%
+0.196%
+0.167%
+0.164%
+0.143%
+0.123%
+0.057%
+0.031%
+0.004%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Cardiac flutter
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.39%
+0.35%
+0.31%
+0.27%
+0.23%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.165%
+0.151%
+0.137%
+0.282%
+0.130%
-0.021%
+0.035%
+0.013%
-0.009%
+0.083%
+0.048%
+0.013%
+0.150%
+0.111%
+0.072%
+0.206%
+0.165%
+0.124%
+0.244%
+0.195%
+0.147%
+0.235%
+0.201%
+0.167%
+0.186%
+0.162%
+0.138%
+0.053%
+0.023%
-0.008%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

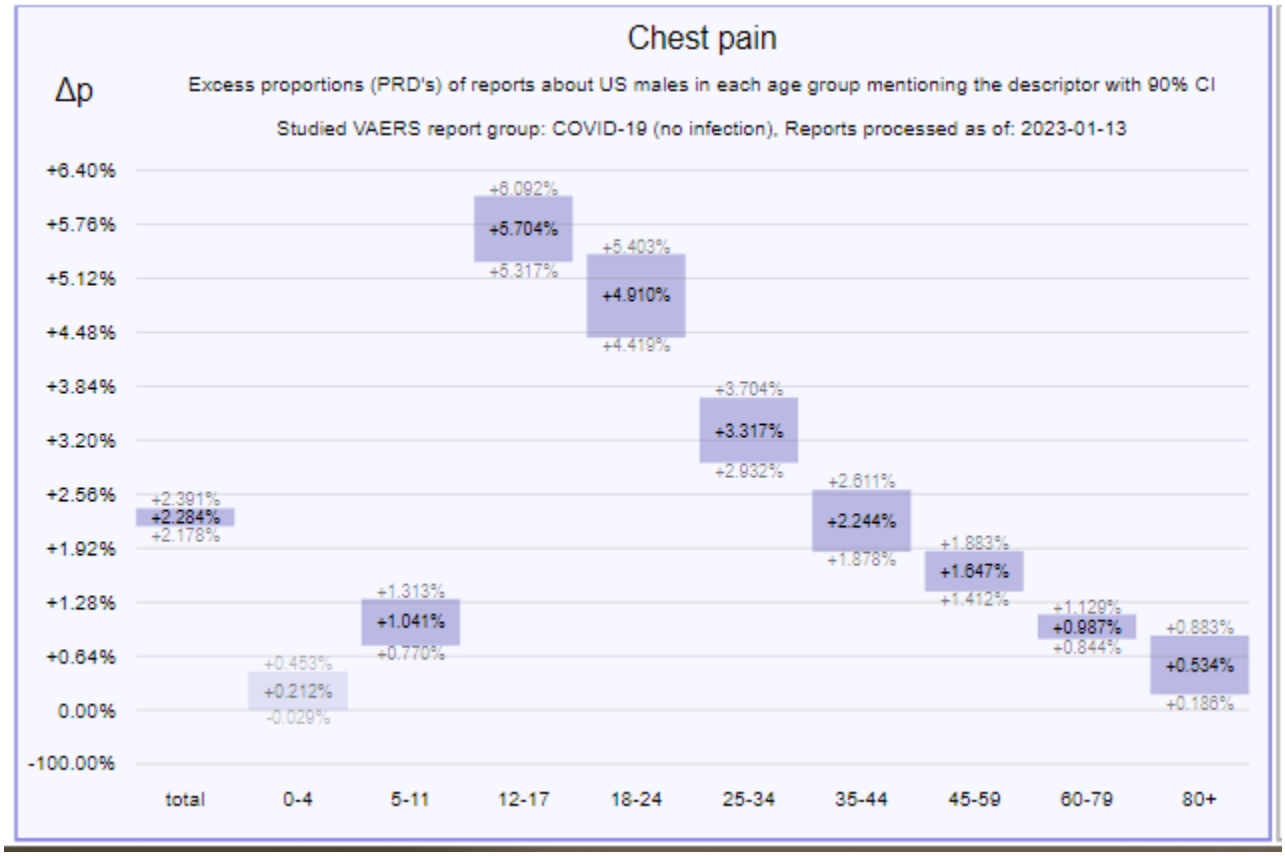
5.2.2.9 Pulmonary Thrombosis

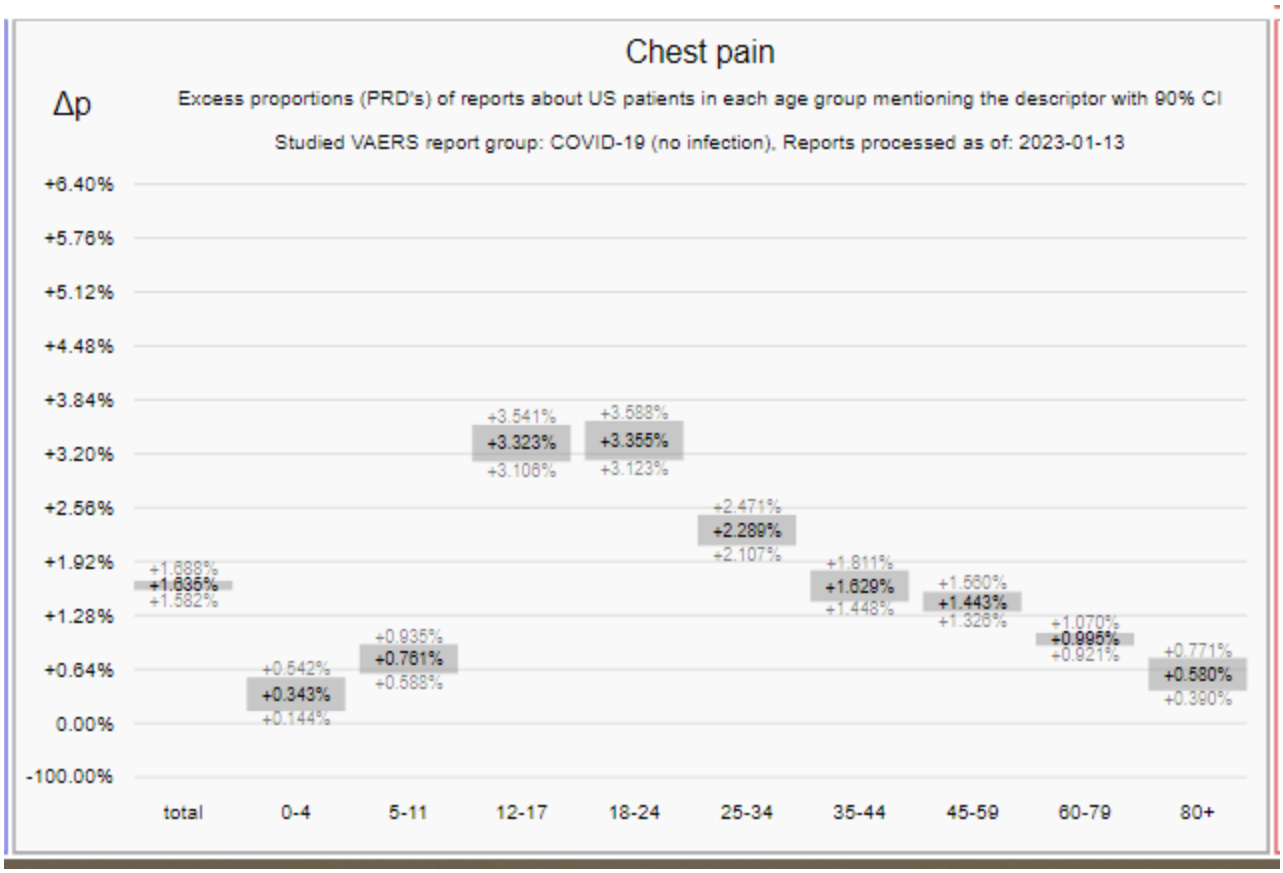


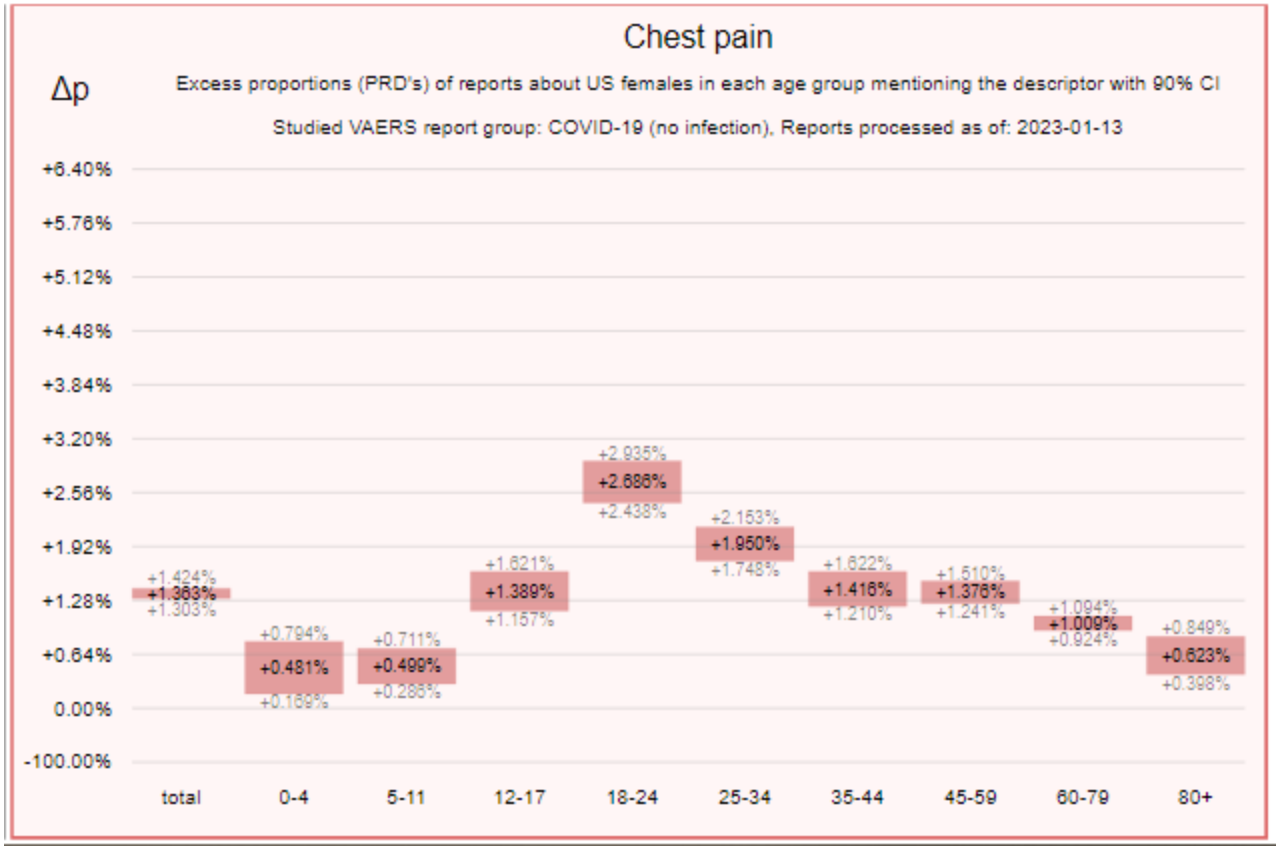

Pulmonary thrombosis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.26%
+0.23%
+0.21%
+0.18%
+0.16%
+0.13%
+0.10%
+0.08%
+0.05%
+0.03%
0.00%
-100.00%
+0.088%
+0.082%
+0.075%
+0.012%
+0.005%
-0.002%
+0.047%
+0.027%
+0.008%
+0.035%
+0.022%
+0.009%
+0.080%
+0.059%
+0.039%
+0.107%
+0.090%
+0.072%
+0.164%
+0.146%
+0.128%
+0.186%
+0.136%
+0.086%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Pulmonary thrombosis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.26%
+0.23%
+0.21%
+0.18%
+0.16%
+0.13%
+0.10%
+0.08%
+0.05%
+0.03%
0.00%
-100.00%
+0.080%
+0.071%
+0.062%
+0.017%
+0.005%
-0.006%
+0.060%
+0.034%
+0.008%
+0.032%
+0.017%
+0.003%
+0.067%
+0.045%
+0.024%
+0.082%
+0.065%
+0.047%
+0.143%
+0.122%
+0.102%
+0.226%
+0.160%
+0.094%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

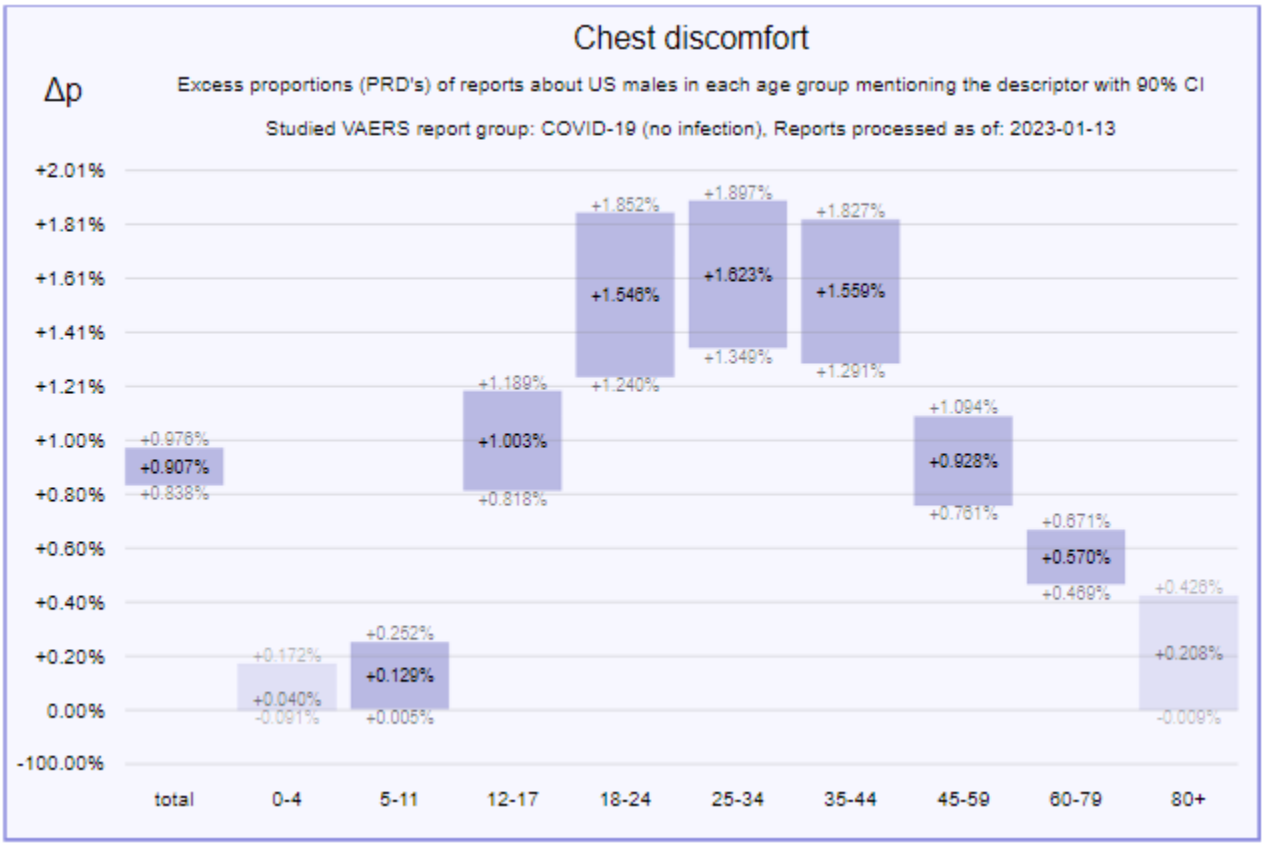
5.2.2.10 Chest Pain

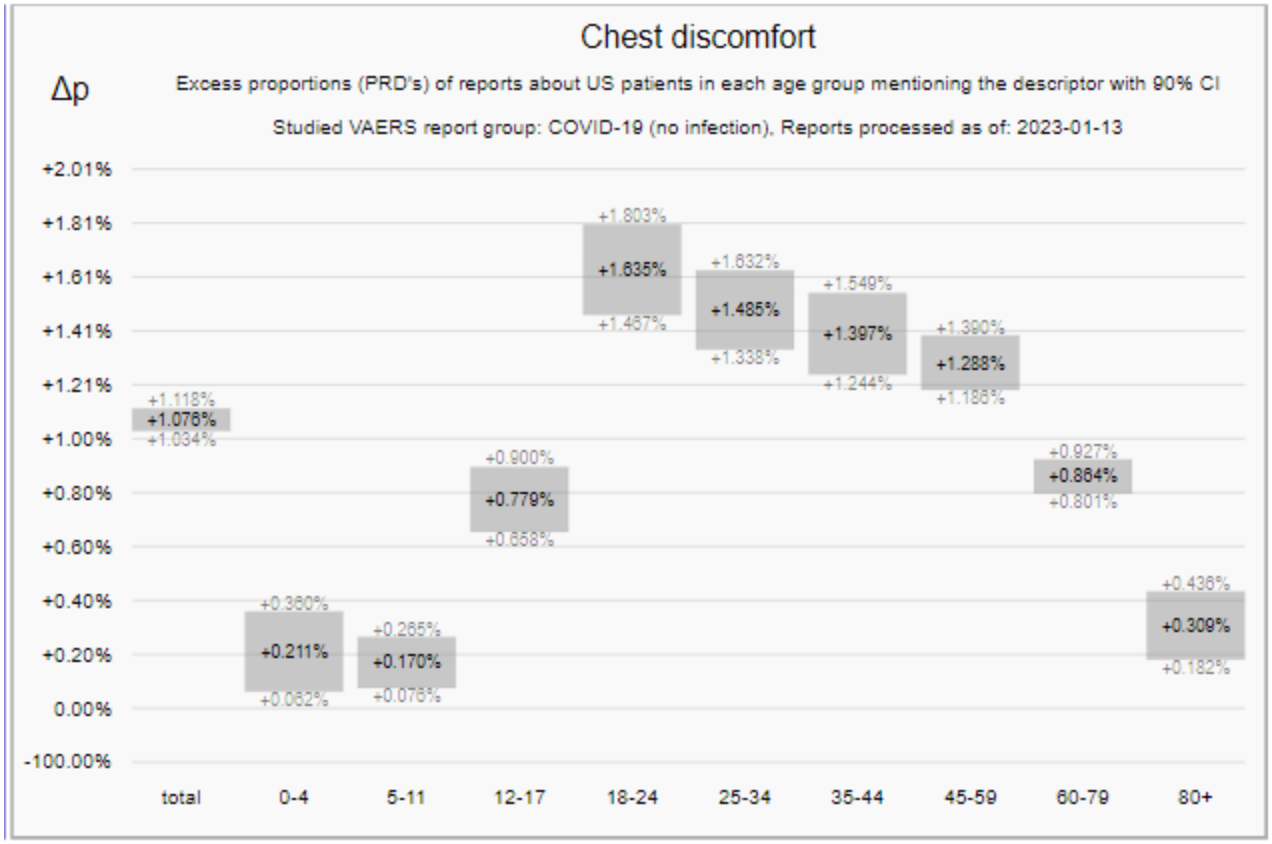


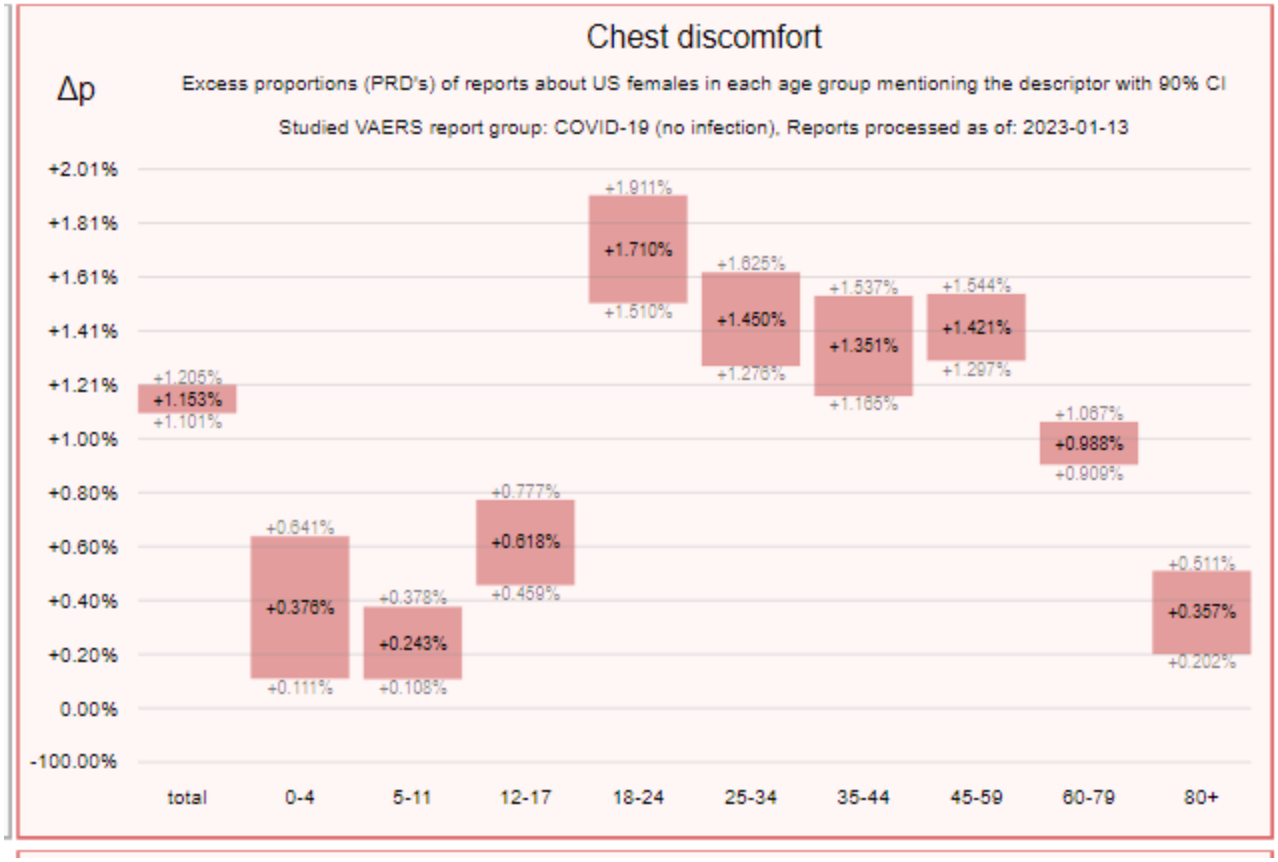

Chest pain
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+6.40%
+5.76%
+5.12%
+4.48%
+3.84%
+3.20%
+2.56%
+1.92%
+1.28%
+0.64%
0.00%
-100.00%
+1.688%
+1.635%
+1.582%
+0.542%
+0.343%
+0.144%
+0.935%
+0.761%
+0.588%
+3.541%
+3.323%
+3.106%
+3.588%
+3.355%
+3.123%
+2.471%
+2.289%
+2.107%
+1.811%
+1.629%
+1.448%
+1.560%
+1.443%
+1.326%
+1.070%
+0.995%
+0.921%
+0.771%
+0.580%
+0.390%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Chest pain
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+6.40%
+5.76%
+5.12%
+4.48%
+3.84%
+3.20%
+2.56%
+1.92%
+1.28%
+0.64%
0.00%
-100.00%
+1.424%
+1.363%
+1.303%
+0.794%
+0.481%
+0.169%
+0.711%
+0.499%
+0.288%
+1.621%
+1.389%
+1.157%
+2.935%
+2.686%
+2.438%
+2.153%
+1.950%
+1.748%
+1.622%
+1.416%
+1.210%
+1.510%
+1.376%
+1.241%
+1.094%
+1.009%
+0.924%
+0.849%
+0.623%
+0.398%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

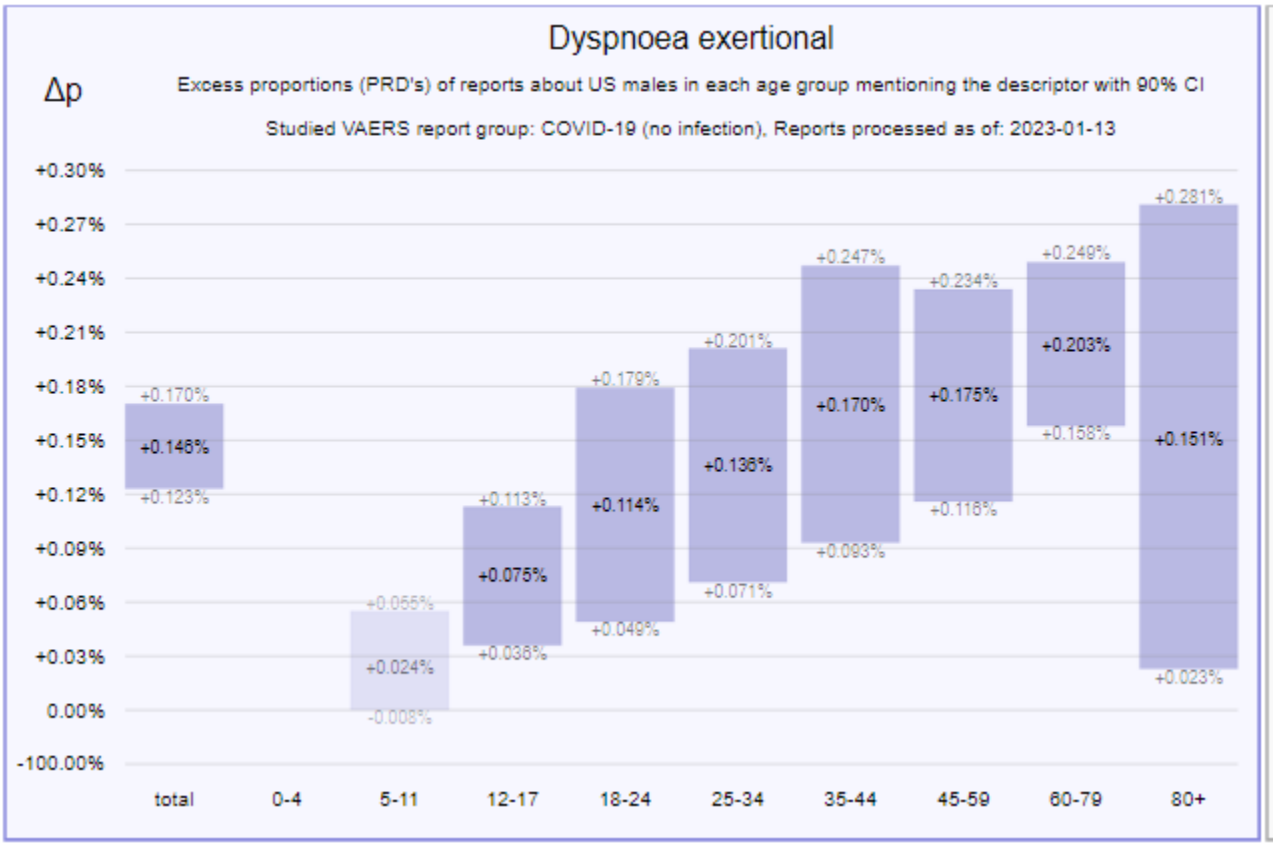
5.2.2.11 Chest Discomfort

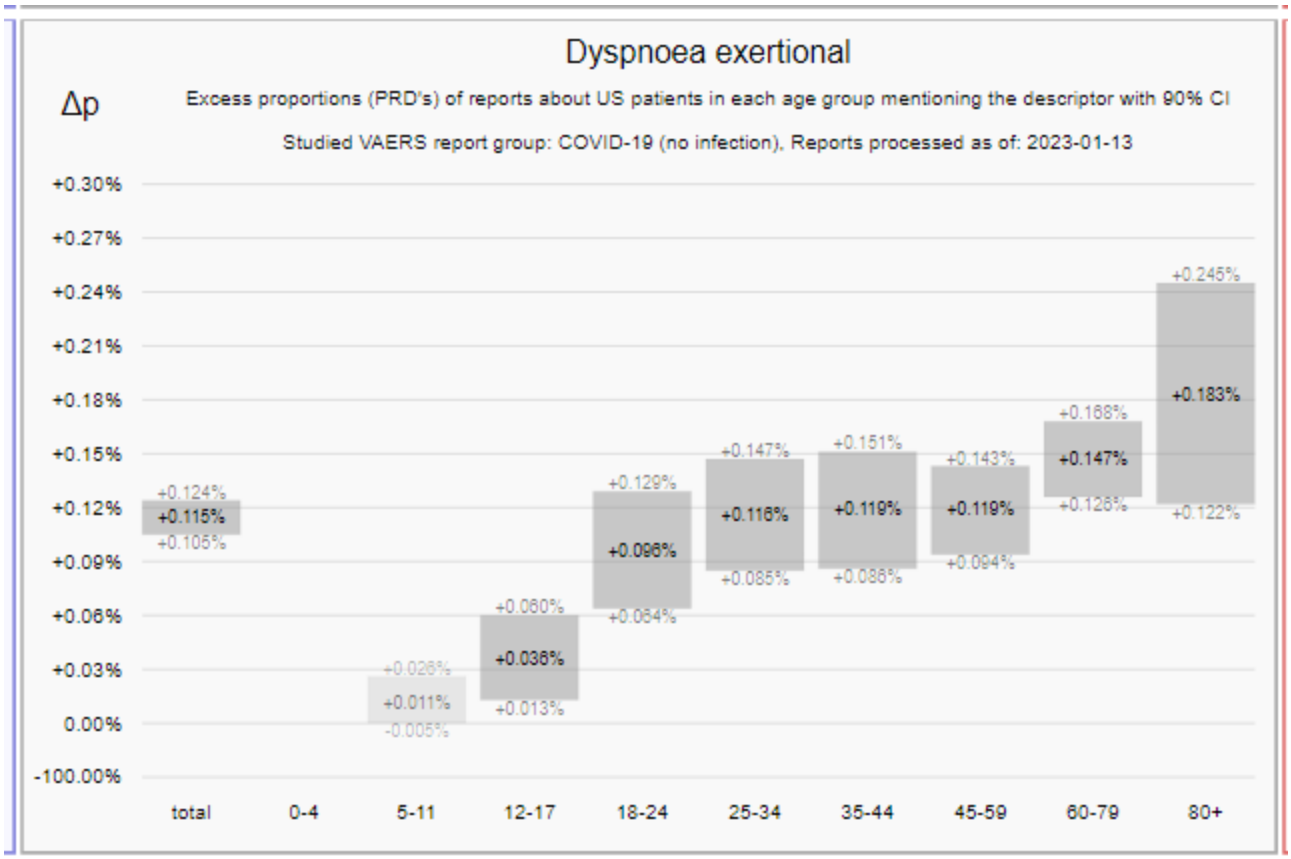


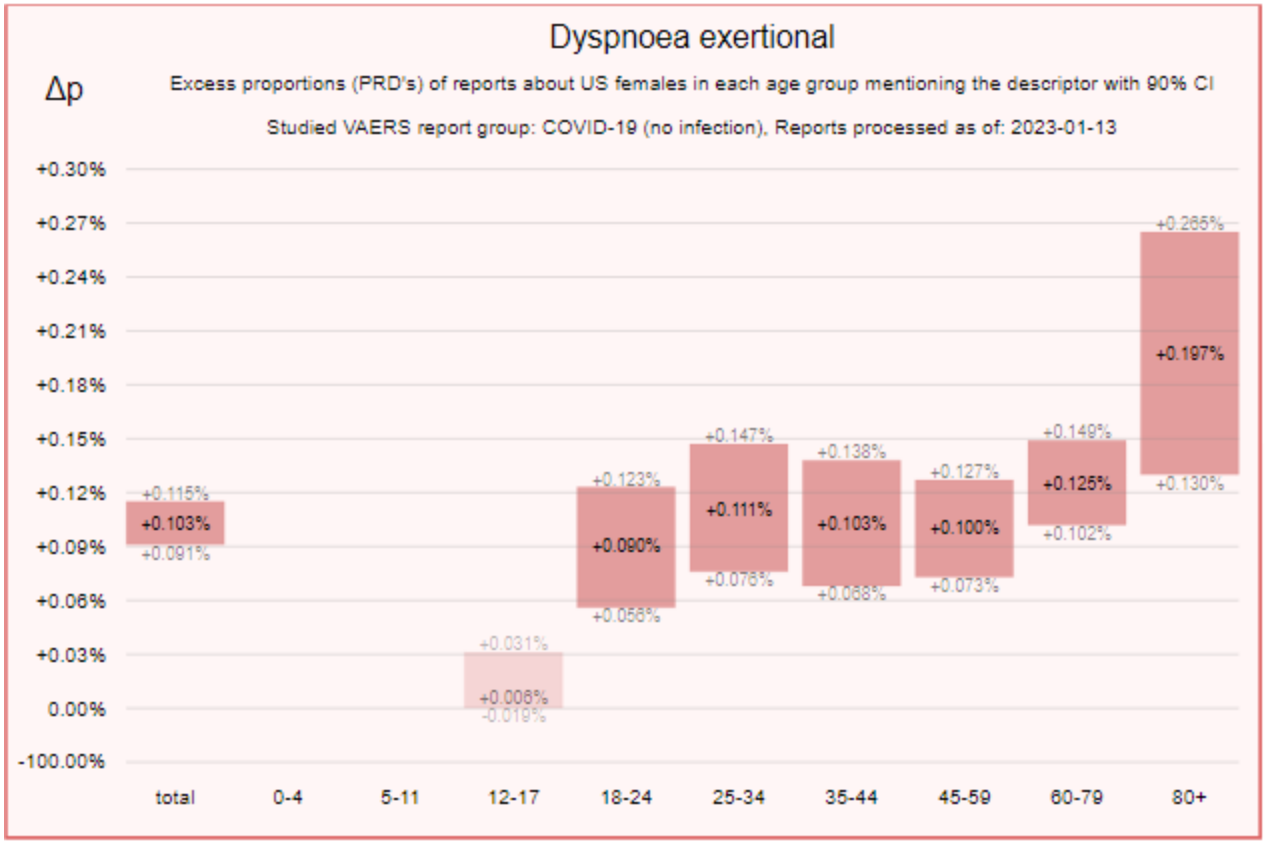

Chest discomfort
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.01%
+1.81%
+1.61%
+1.41%
+1.21%
+1.00%
+0.80%
+0.60%
+0.40%
+0.20%
0.00%
-100.00%
+1.118%
+1.076%
+1.034%
+0.360%
+0.211%
+0.062%
+0.265%
+0.170%
+0.076%
+0.900%
+0.779%
+0.658%
+1.803%
+1.635%
+1.467%
+1.632%
+1.485%
+1.338%
+1.549%
+1.397%
+1.244%
+1.390%
+1.288%
+1.186%
+0.927%
+0.864%
+0.801%
+0.436%
+0.309%
+0.182%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Chest discomfort
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.01%
+1.81%
+1.61%
+1.41%
+1.21%
+1.00%
+0.80%
+0.60%
+0.40%
+0.20%
0.00%
-100.00%
+1.205%
+1.153%
+1.101%
+0.641%
+0.376%
+0.111%
+0.378%
+0.243%
+0.108%
+0.777%
+0.618%
+0.459%
+1.911%
+1.710%
+1.510%
+1.625%
+1.460%
+1.276%
+1.537%
+1.351%
+1.165%
+1.544%
+1.421%
+1.297%
+1.067%
+0.988%
+0.909%
+0.511%
+0.357%
+0.202%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

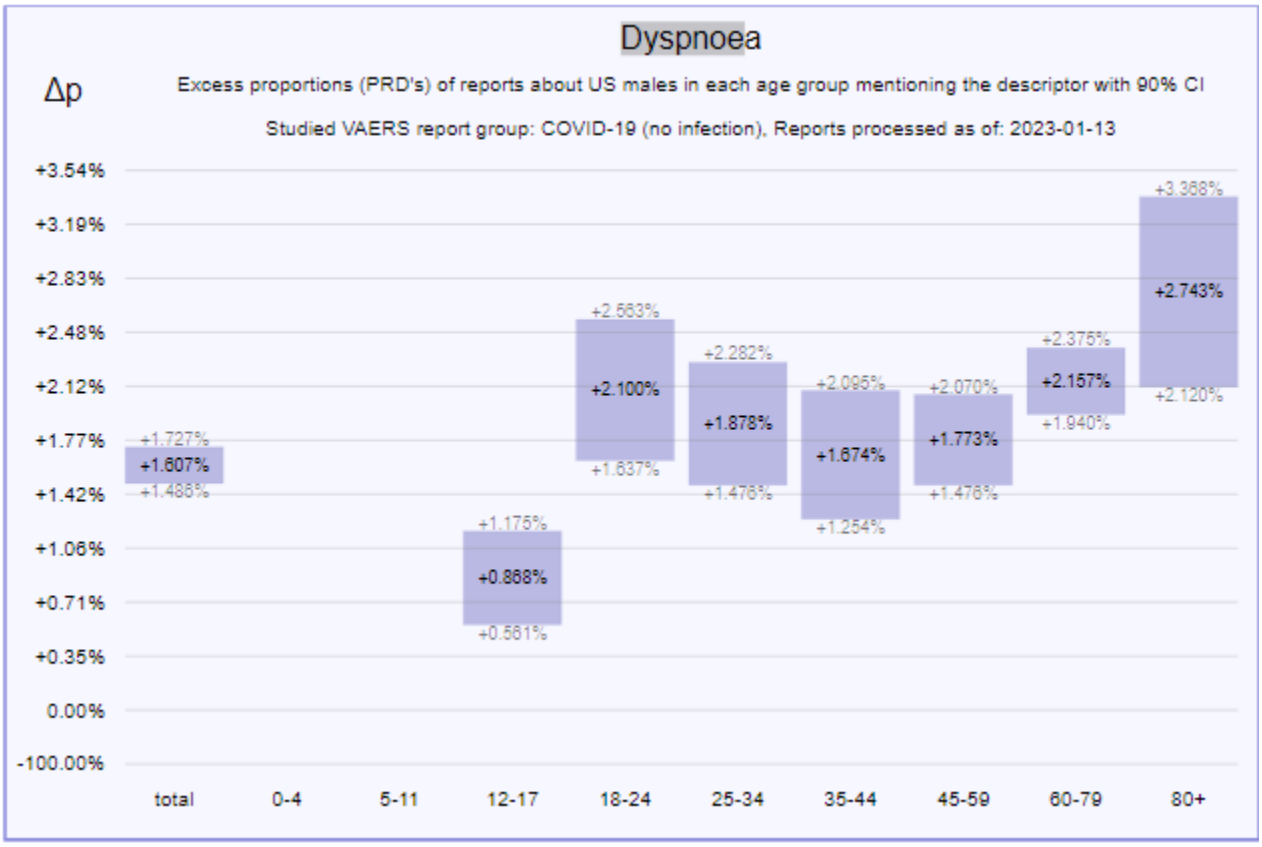
5.2.2.12 Dyspnoea Exertional

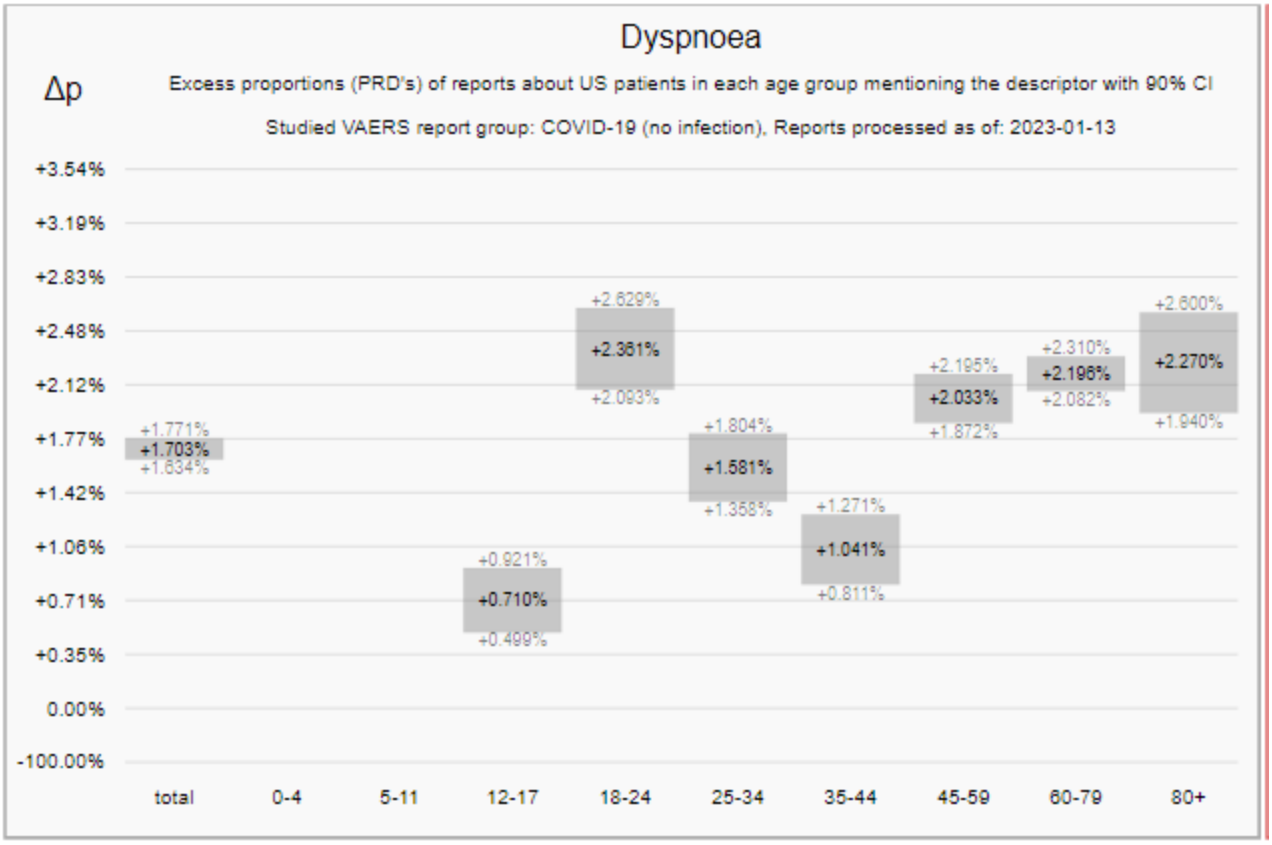


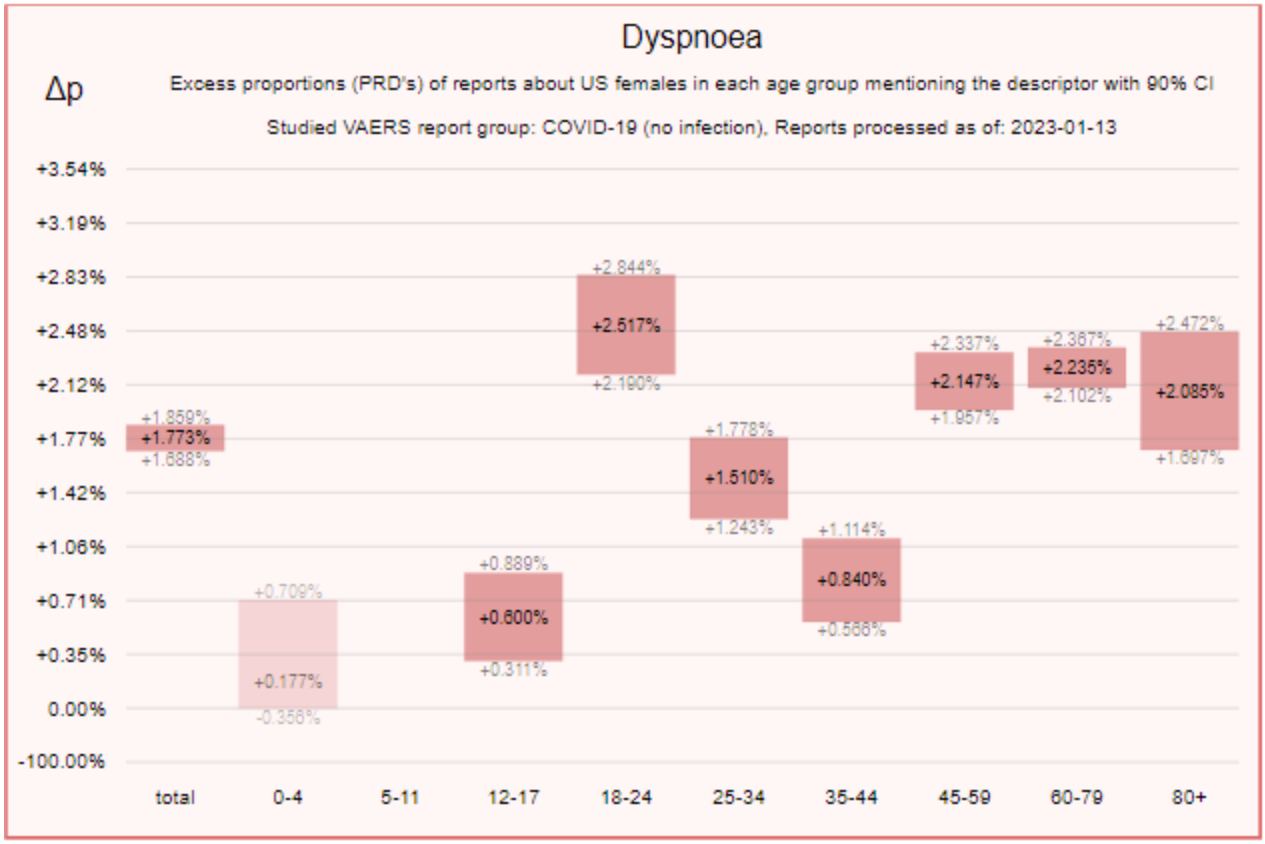

Dyspnoea exertional
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.124%
+0.115%
+0.105%
+0.026%
+0.011%
-0.005%
+0.060%
+0.036%
+0.013%
+0.129%
+0.096%
+0.064%
+0.147%
+0.116%
+0.085%
+0.151%
+0.119%
+0.086%
+0.143%
+0.119%
+0.094%
+0.168%
+0.147%
+0.126%
+0.245%
+0.183%
+0.122%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Dyspnoea exertional
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.115%
+0.103%
+0.091%
+0.031%
+0.006%
-0.019%
+0.123%
+0.090%
+0.056%
+0.147%
+0.111%
+0.076%
+0.138%
+0.103%
+0.068%
+0.127%
+0.100%
+0.073%
+0.149%
+0.125%
+0.102%
+0.265%
+0.197%
+0.130%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

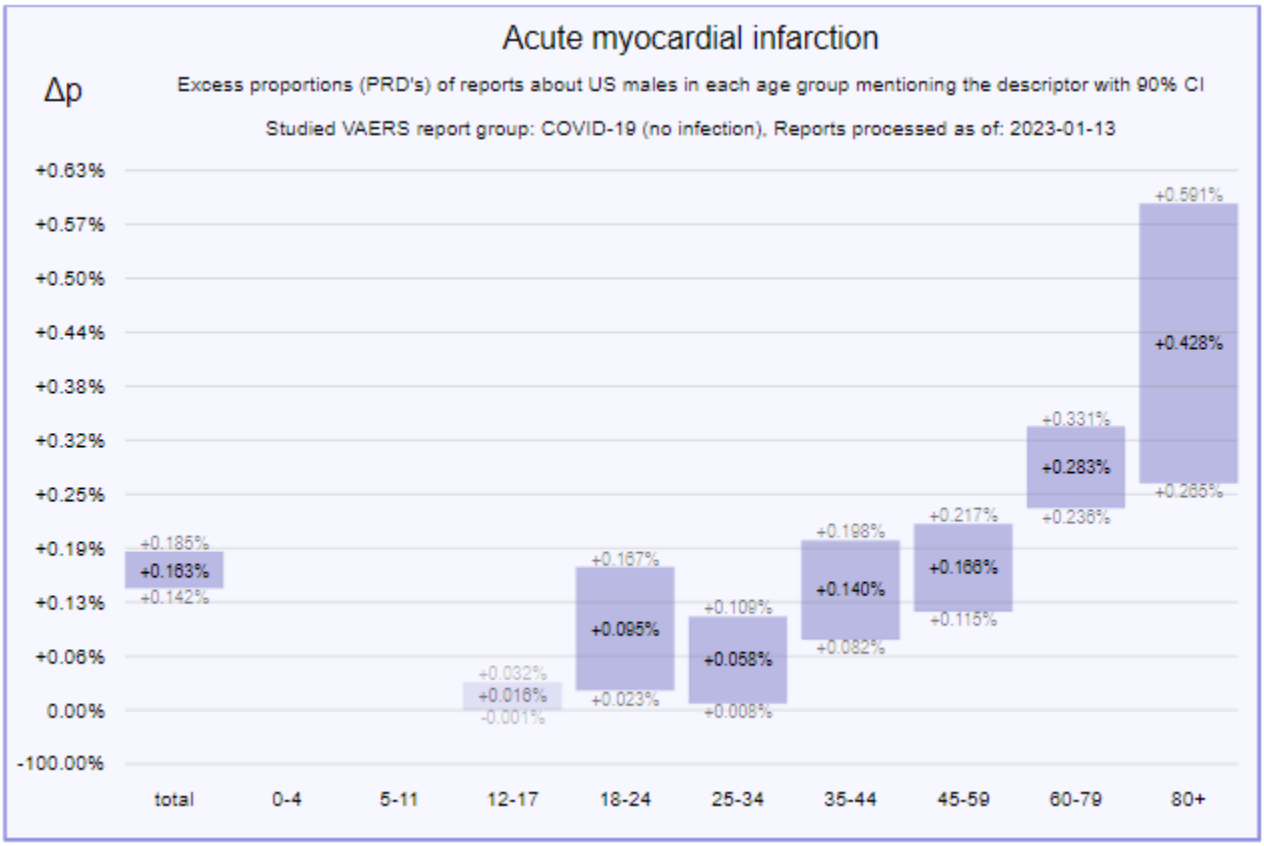
5.2.2.13 Dyspnea

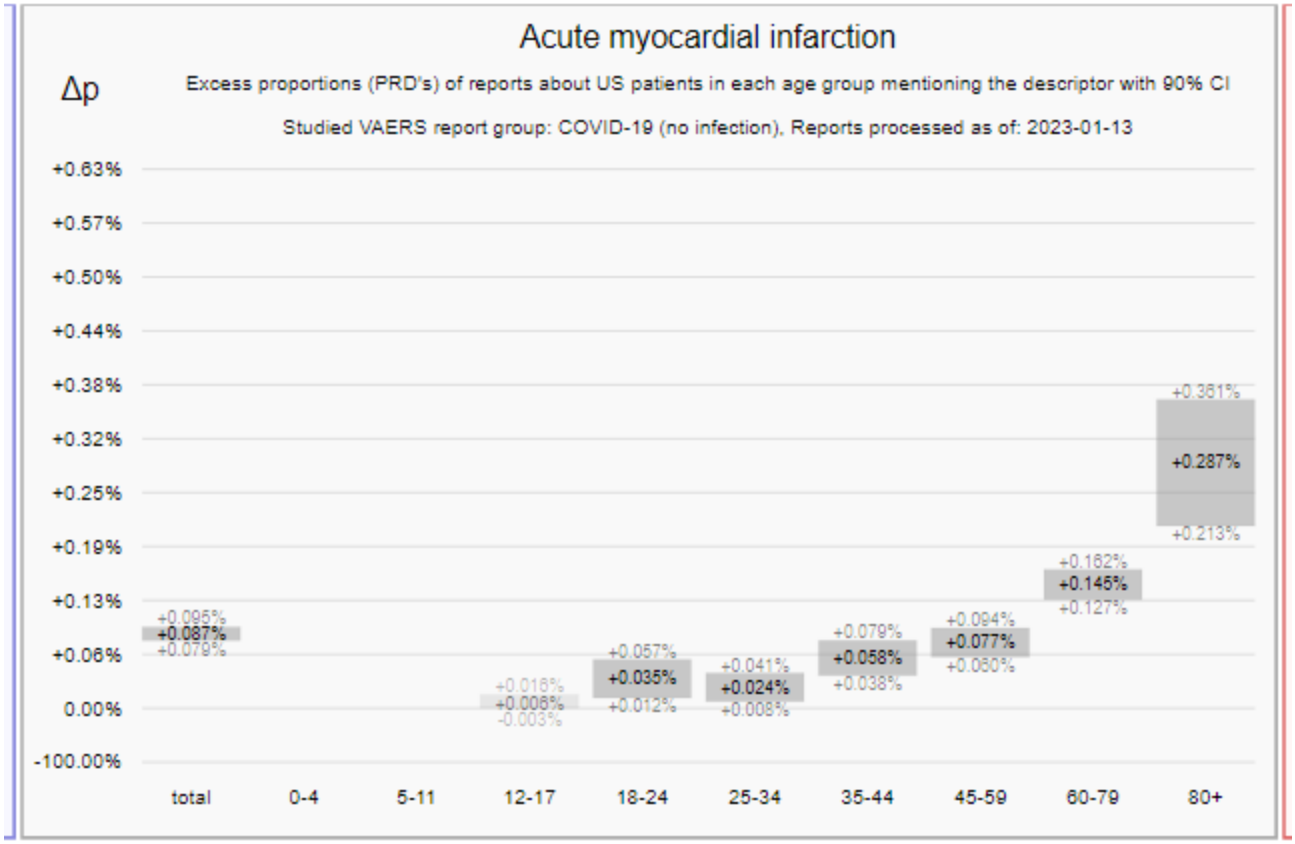


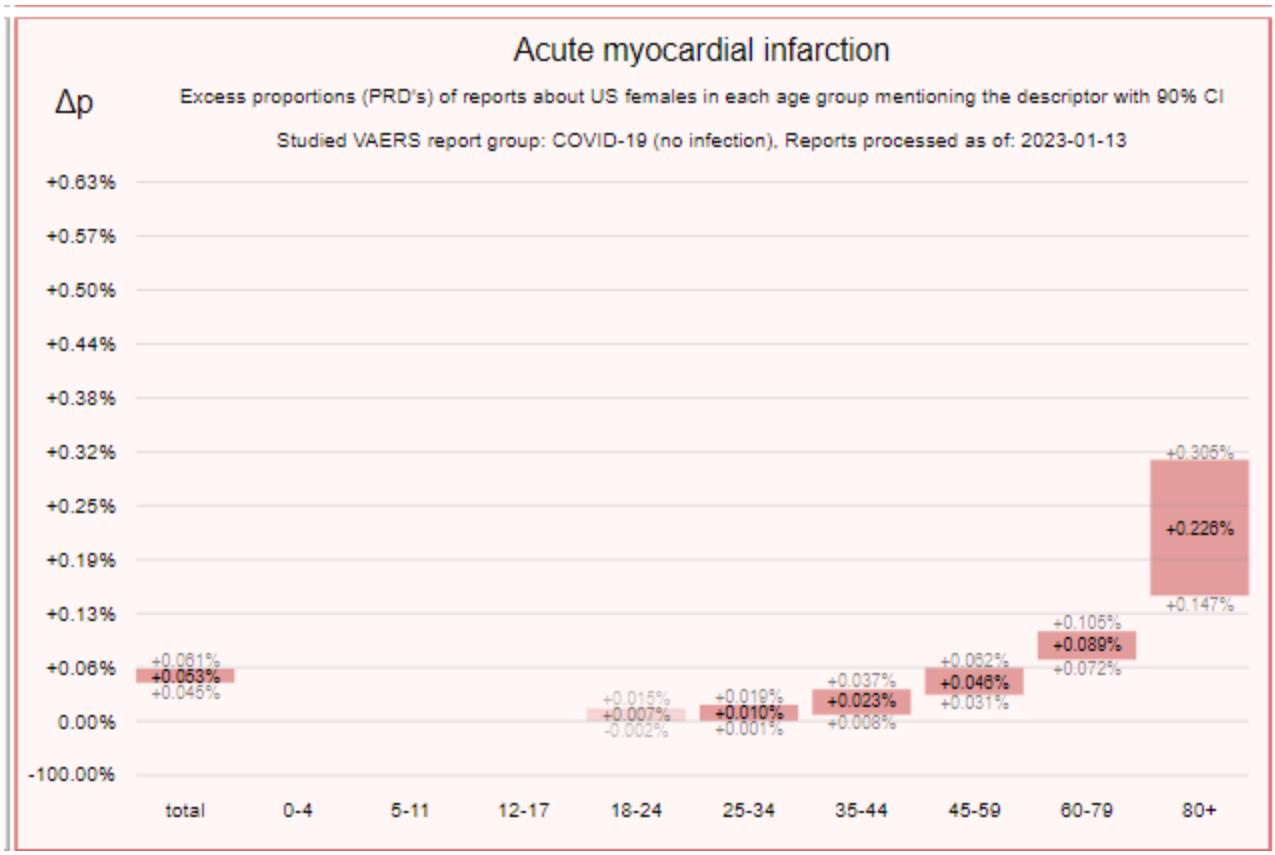

Dyspnoea
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.54%
+3.19%
+2.83%
+2.48%
+2.12%
+1.77%
+1.42%
+1.06%
+0.71%
+0.35%
0.00%
-100.00%
+1.771%
+1.703%
+1.634%
+0.921%
+0.710%
+0.499%
+2.629%
+2.361%
+2.093%
+1.804%
+1.581%
+1.358%
+1.271%
+1.041%
+0.811%
+2.195%
+2.033%
+1.872%
+2.310%
+2.196%
+2.082%
+2.600%
+2.270%
+1.940%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Dyspnoea
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.54%
+3.19%
+2.83%
+2.48%
+2.12%
+1.77%
+1.42%
+1.06%
+0.71%
+0.35%
0.00%
-100.00%
+1.859%
+1.773%
+1.688%
+0.709%
+0.177%
-0.356%
+0.889%
+0.600%
+0.311%
+2.844%
+2.517%
+2.190%
+1.778%
+1.510%
+1.243%
+1.114%
+0.840%
+0.566%
+2.337%
+2.147%
+1.957%
+2.367%
+2.235%
+2.102%
+2.472%
+2.085%
+1.697%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

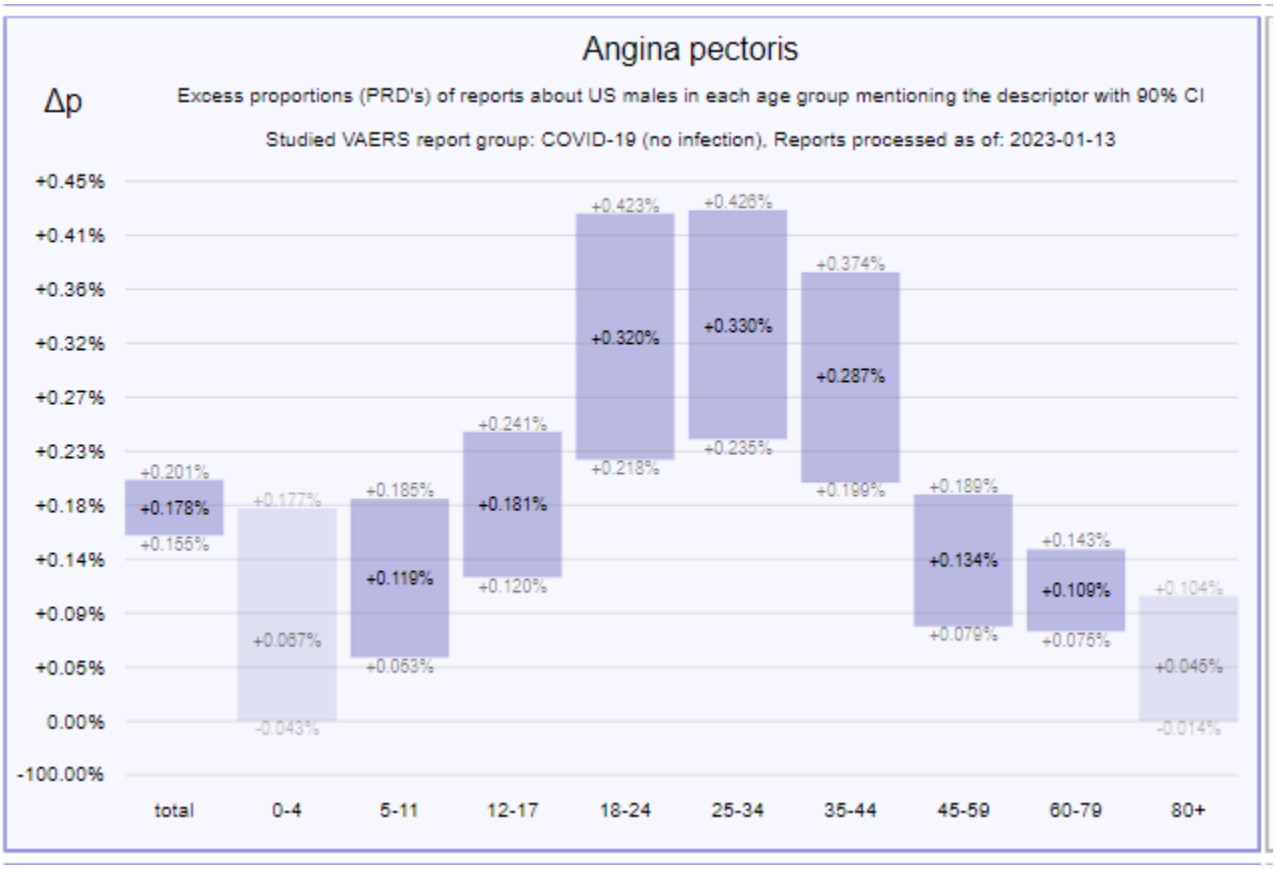
5.2.2.14 Acute Myocardial Infarction

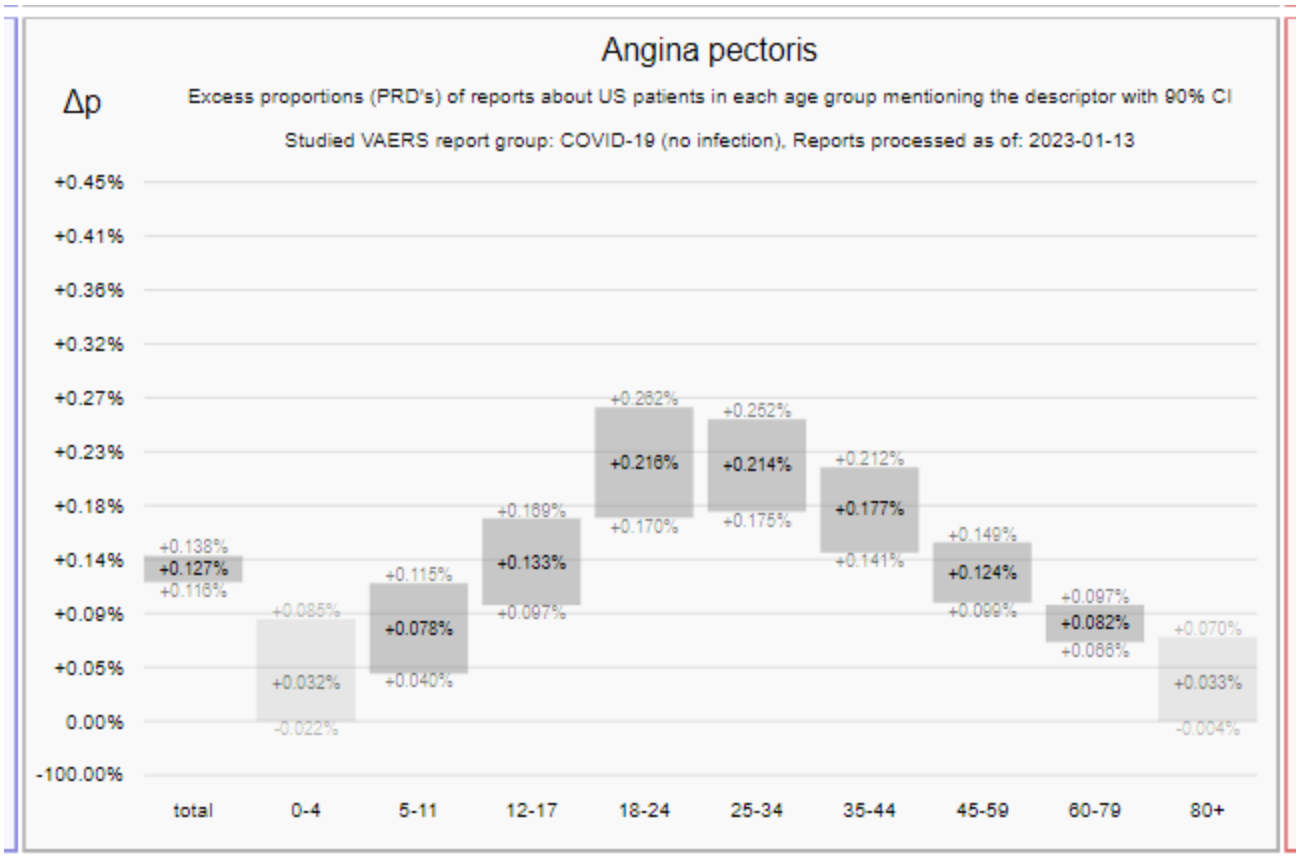


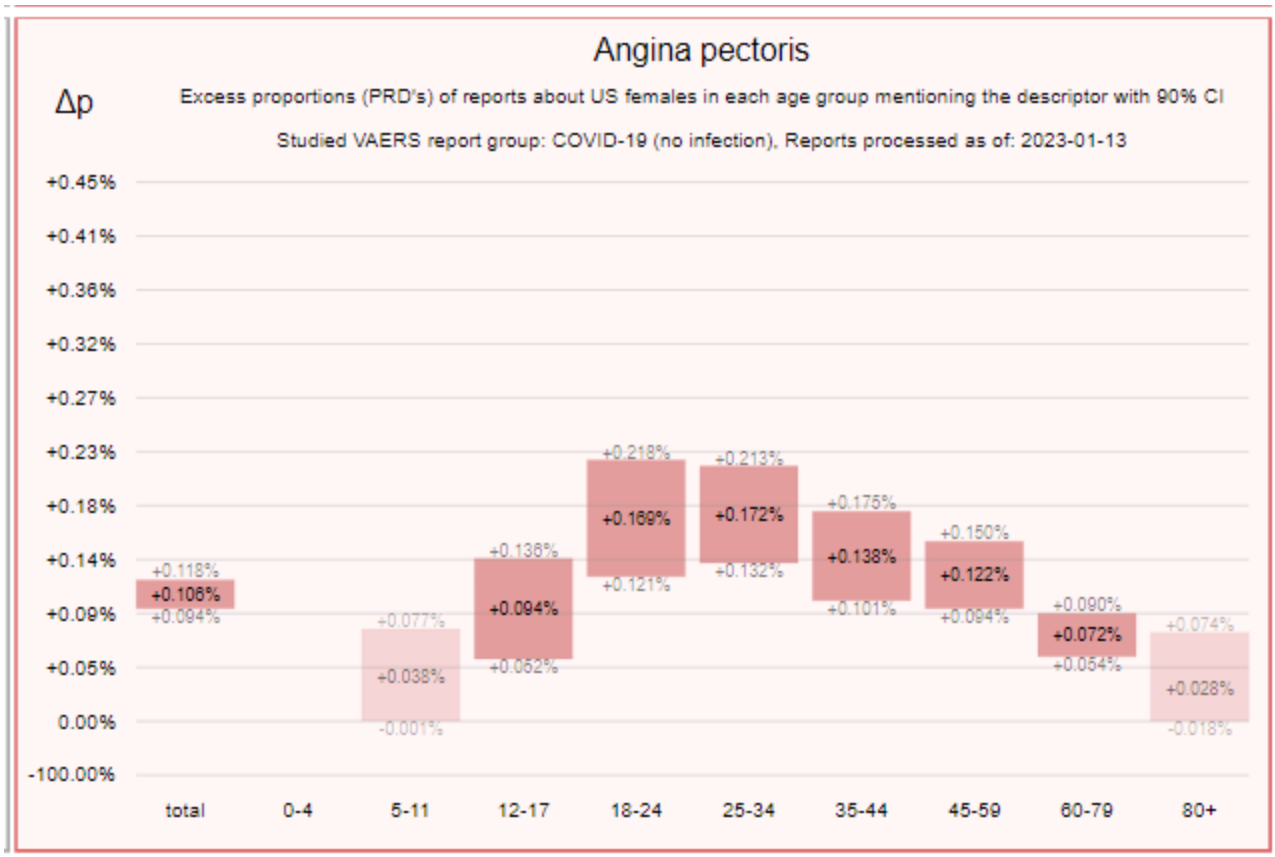

Acute myocardial infarction
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.63%
+0.57%
+0.50%
+0.44%
+0.38%
+0.32%
+0.25%
+0.19%
+0.13%
+0.06%
0.00%
-100.00%
+0.095%
+0.087%
+0.079%
+0.016%
+0.006%
-0.003%
+0.057%
+0.035%
+0.012%
+0.041%
+0.024%
+0.008%
+0.079%
+0.058%
+0.038%
+0.094%
+0.077%
+0.060%
+0.162%
+0.145%
+0.127%
+0.361%
+0.287%
+0.213%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Acute myocardial infarction
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.63%
+0.57%
+0.50%
+0.44%
+0.38%
+0.32%
+0.25%
+0.19%
+0.13%
+0.06%
0.00%
-100.00%
+0.061%
+0.053%
+0.045%
+0.015%
+0.007%
-0.002%
+0.019%
+0.010%
+0.001%
+0.037%
+0.023%
+0.008%
+0.062%
+0.046%
+0.031%
+0.105%
+0.089%
+0.072%
+0.305%
+0.226%
+0.147%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.2.15 Angina Pectoris

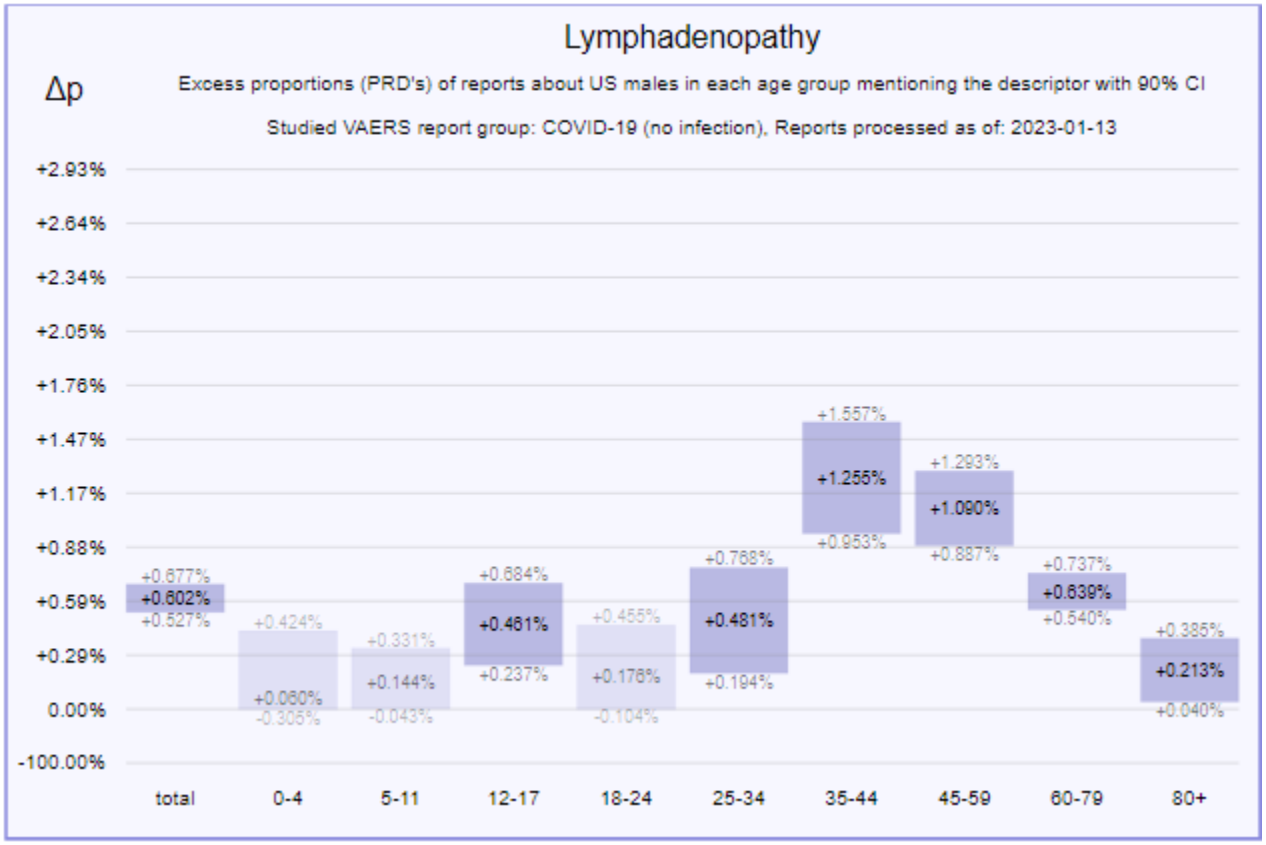


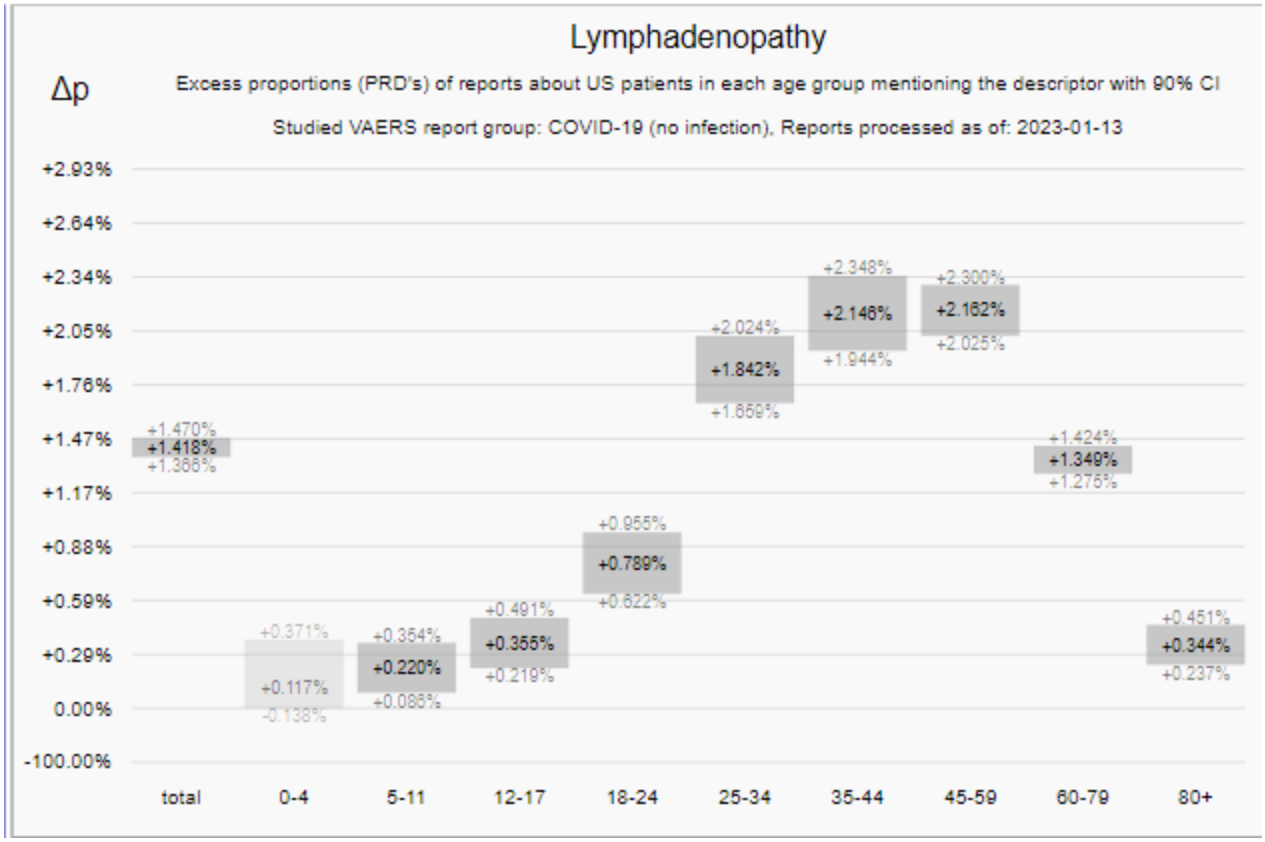

Angina pectoris
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.45%
+0.41%
+0.36%
+0.32%
+0.27%
+0.23%
+0.18%
+0.14%
+0.09%
+0.05%
0.00%
-100.00%
+0.138%
+0.127%
+0.116%
+0.085%
+0.032%
-0.022%
+0.115%
+0.078%
+0.040%
+0.169%
+0.133%
+0.097%
+0.262%
+0.216%
+0.170%
+0.252%
+0.214%
+0.175%
+0.212%
+0.177%
+0.141%
+0.149%
+0.124%
+0.099%
+0.097%
+0.082%
+0.066%
+0.070%
+0.033%
-0.004%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

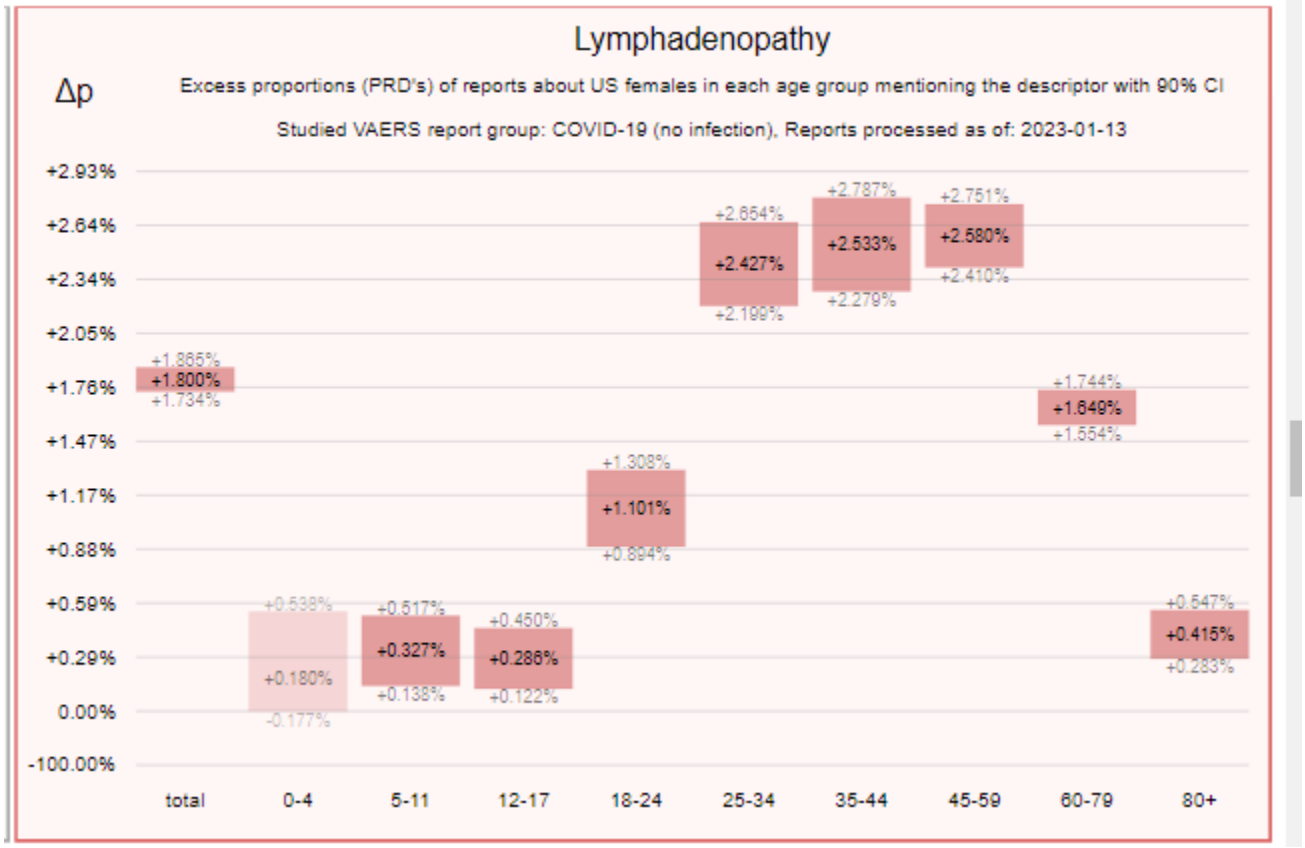

Angina pectoris
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.45%
+0.41%
+0.36%
+0.32%
+0.27%
+0.23%
+0.18%
+0.14%
+0.09%
+0.05%
0.00%
-100.00%
+0.118%
+0.106%
+0.094%
+0.077%
+0.038%
-0.001%
+0.136%
+0.094%
+0.052%
+0.218%
+0.169%
+0.121%
+0.213%
+0.172%
+0.132%
+0.175%
+0.138%
+0.101%
+0.150%
+0.122%
+0.094%
+0.090%
+0.072%
+0.054%
+0.074%
+0.028%
-0.018%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.3 Lymphatic System

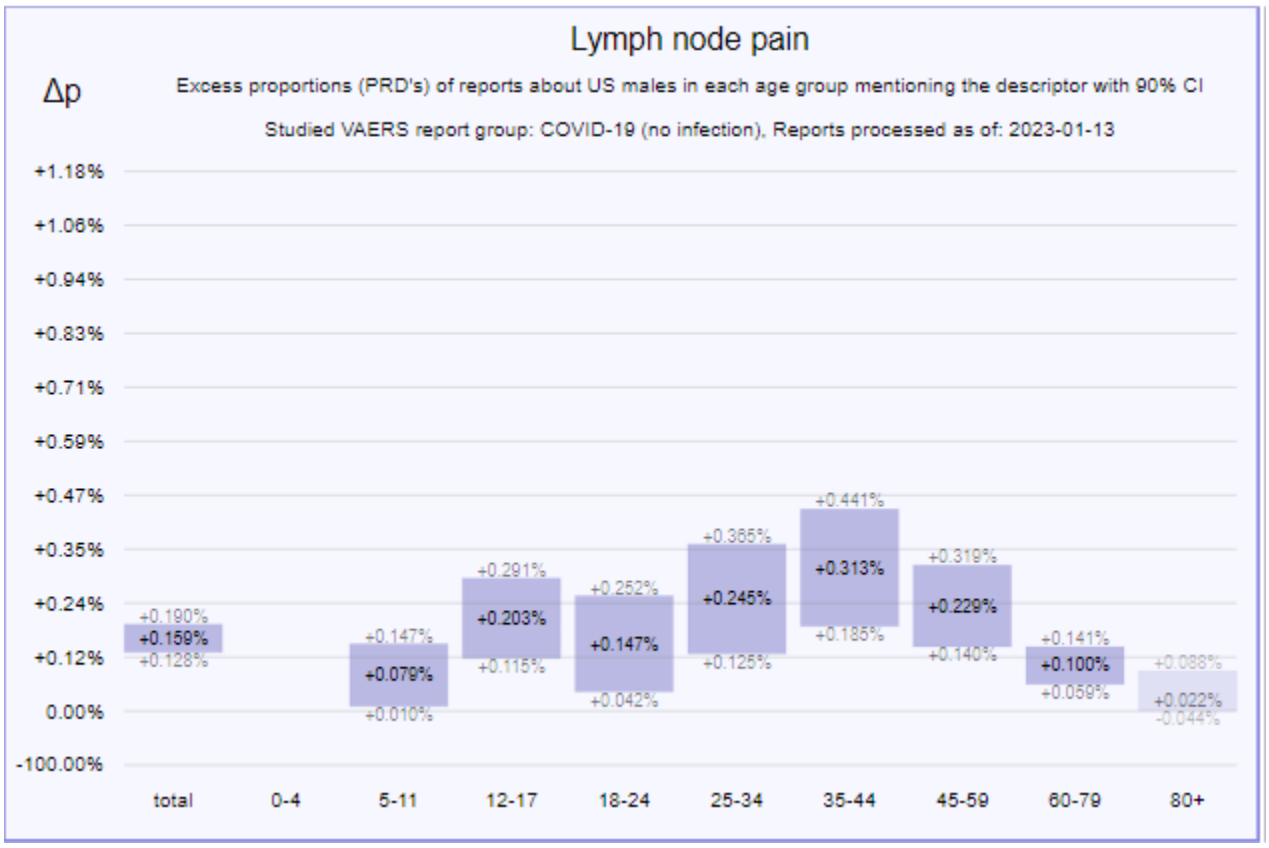
5.2.3.1 Lymphadenopathy

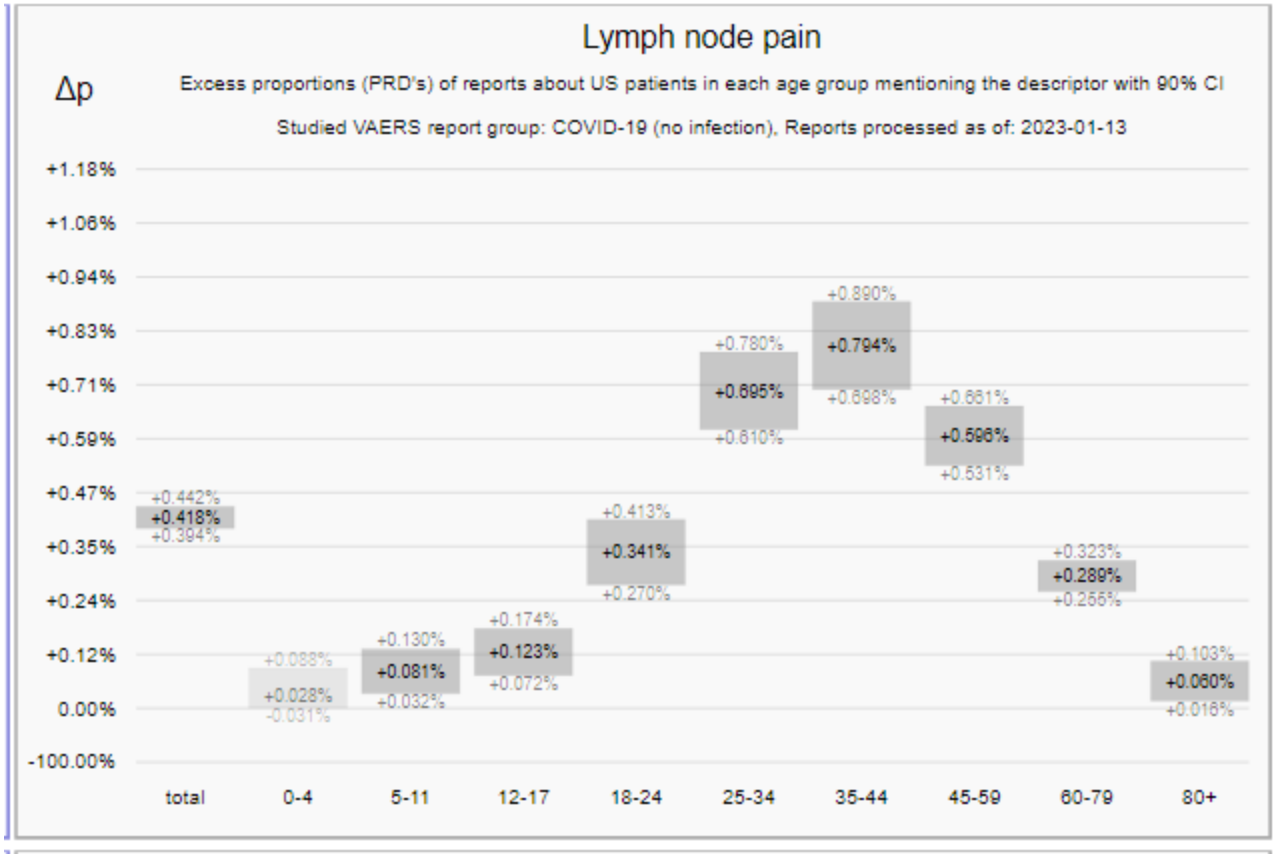


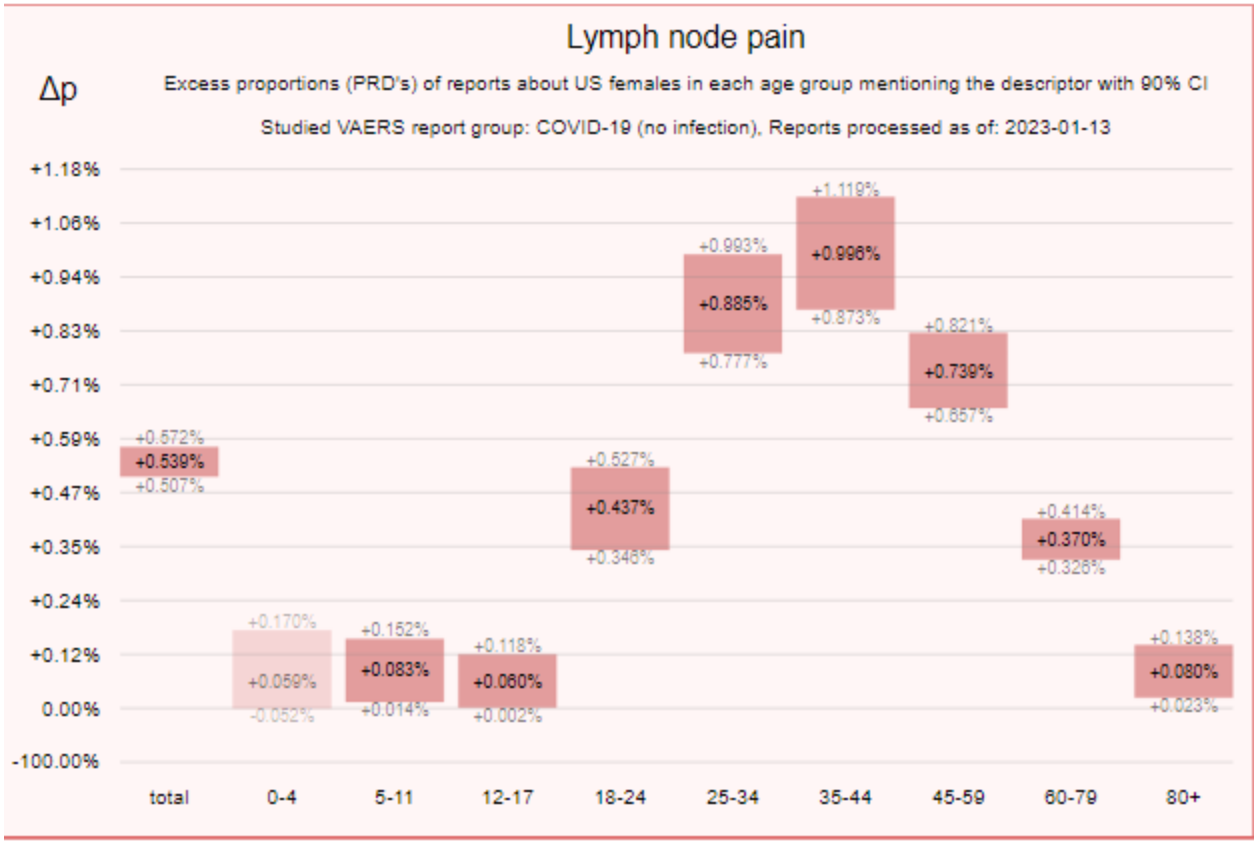

Lymphadenopathy
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.93%
+2.64%
+2.34%
+2.05%
+1.76%
+1.47%
+1.17%
+0.88%
+0.59%
+0.29%
0.00%
-100.00%
+1.470% +1.418% +1.366%
+0.371% +0.117% -0.138%
+0.364% +0.220% +0.086%
+0.491% +0.355% +0.219%
+0.955% +0.789% +0.622%
+2.024% +1.842% +1.659%
+2.348% +2.146% +1.944%
+2.300% +2.162% +2.025%
+1.424% +1.349% +1.275%
+0.451% +0.344% +0.237%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Lymphadenopathy
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.93%
+2.64%
+2.34%
+2.05%
+1.76%
+1.47%
+1.17%
+0.88%
+0.59%
+0.29%
0.00%
-100.00%
+1.865% +1.800% +1.734%
+0.538% +0.180% -0.177%
+0.517% +0.327% +0.138%
+0.450% +0.286% +0.122%
+1.308% +1.101% +0.894%
+2.654% +2.427% +2.199%
+2.787% +2.533% +2.279%
+2.751% +2.580% +2.410%
+1.744% +1.649% +1.554%
+0.647% +0.415% +0.283%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.3.2 Lymph Node Pain

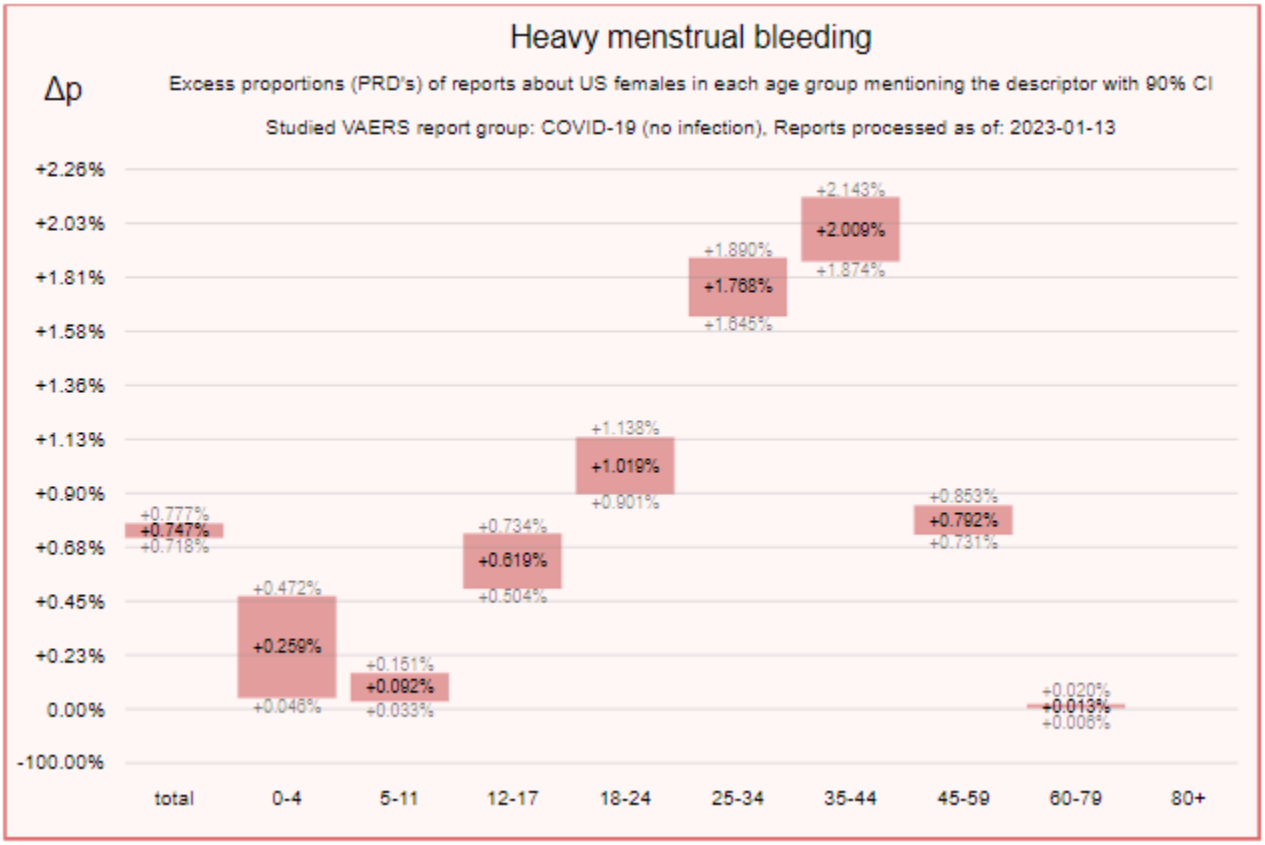



Lymph node pain
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.18%
+1.06%
+0.94%
+0.83%
+0.71%
+0.59%
+0.47%
+0.35%
+0.24%
+0.12%
0.00%
-100.00%
+0.442%
+0.418%
+0.394%
+0.088%
+0.028%
-0.031%
+0.130%
+0.081%
+0.032%
+0.174%
+0.123%
+0.072%
+0.413%
+0.341%
+0.270%
+0.780%
+0.695%
+0.610%
+0.890%
+0.794%
+0.698%
+0.661%
+0.596%
+0.531%
+0.323%
+0.289%
+0.255%
+0.103%
+0.060%
+0.016%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

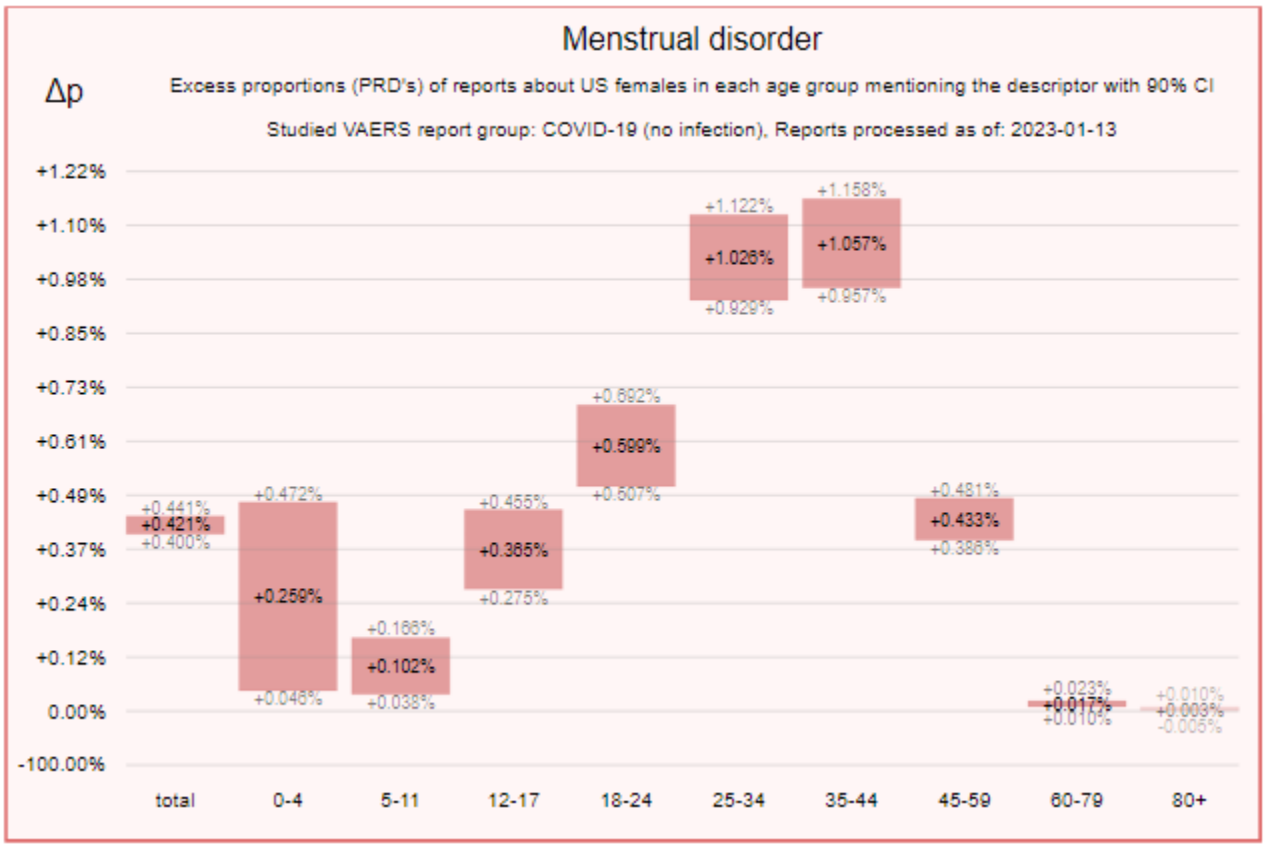

Lymph node pain
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.18%
+1.06%
+0.94%
+0.83%
+0.71%
+0.59%
+0.47%
+0.35%
+0.24%
+0.12%
0.00%
-100.00%
+0.572%
+0.539%
+0.507%
+0.170%
+0.059%
-0.052%
+0.152%
+0.083%
+0.014%
+0.118%
+0.060%
+0.002%
+0.527%
+0.437%
+0.348%
+0.993%
+0.885%
+0.777%
+1.119%
+0.996%
+0.873%
+0.821%
+0.739%
+0.657%
+0.414%
+0.370%
+0.326%
+0.138%
+0.080%
+0.023%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.4 Reproductive System

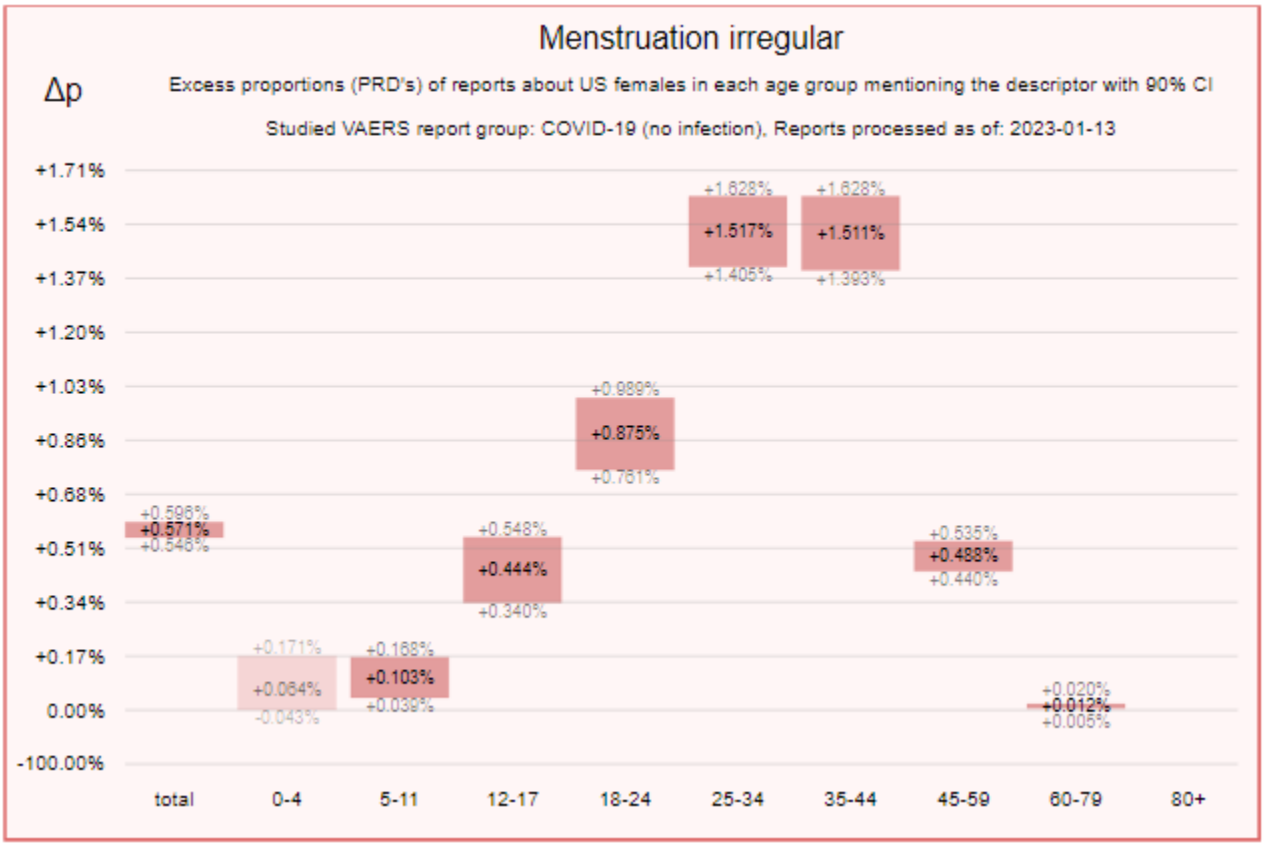
5.2.4.1 Heavy Menstrual Bleeding



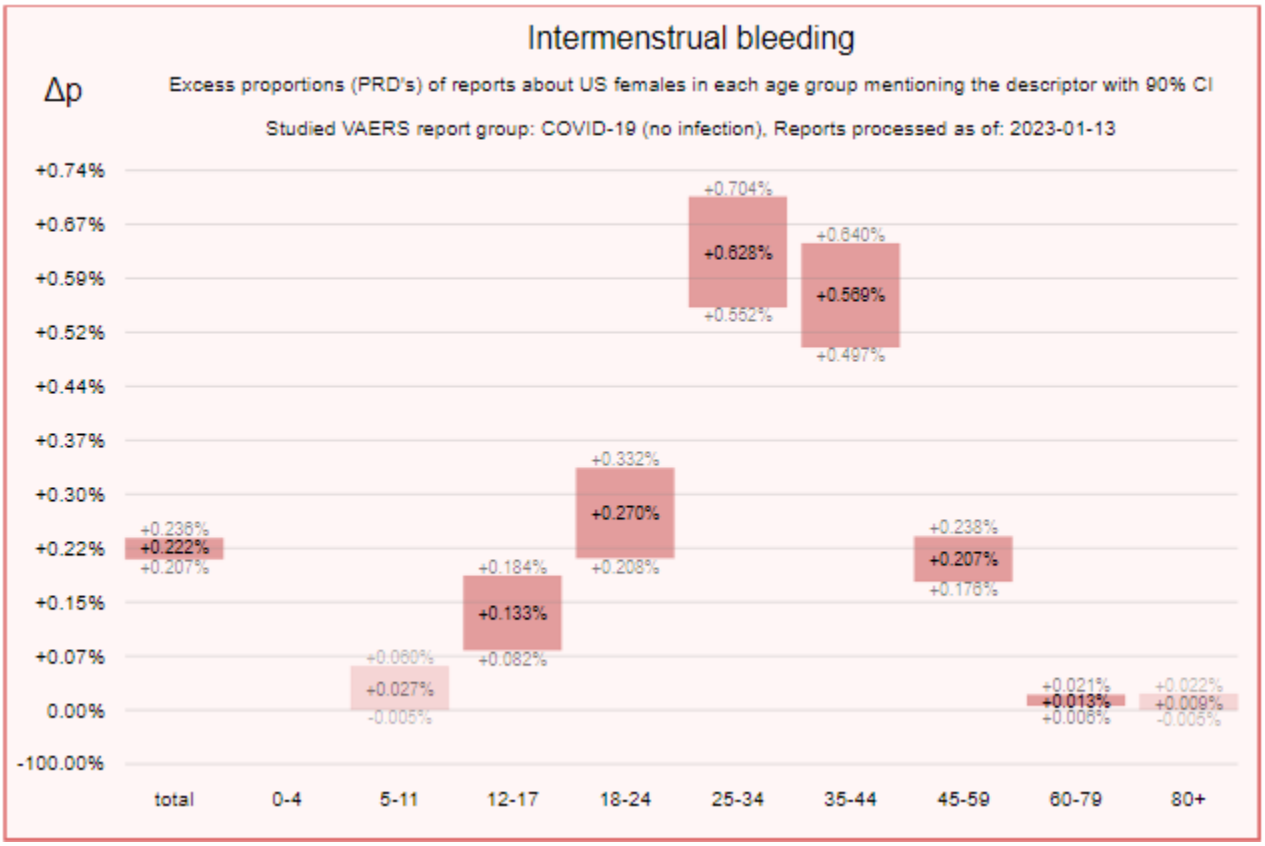
5.2.4.2 Menstrual Disorder



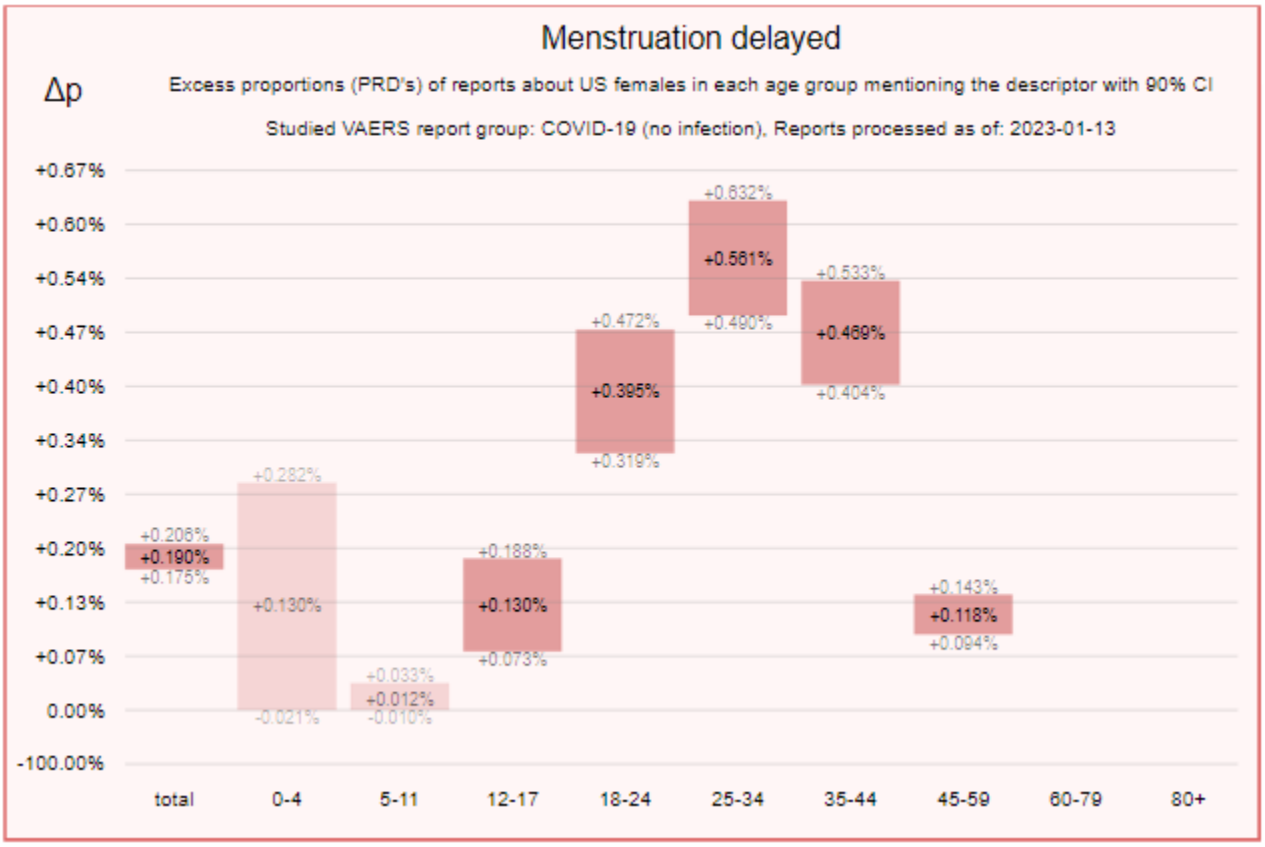
5.2.4.3 Irregular Menstruation



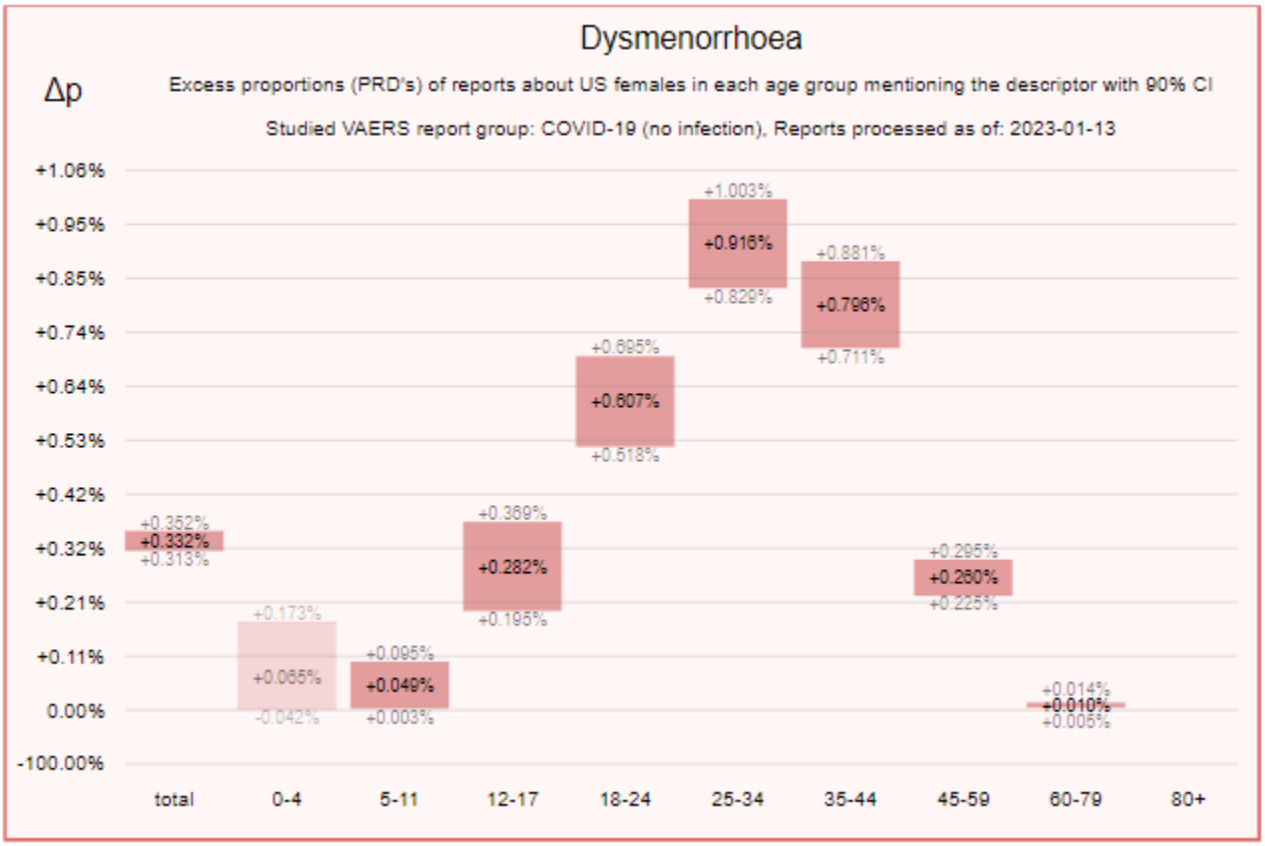
5.2.4.4 Intermenstrual Bleeding



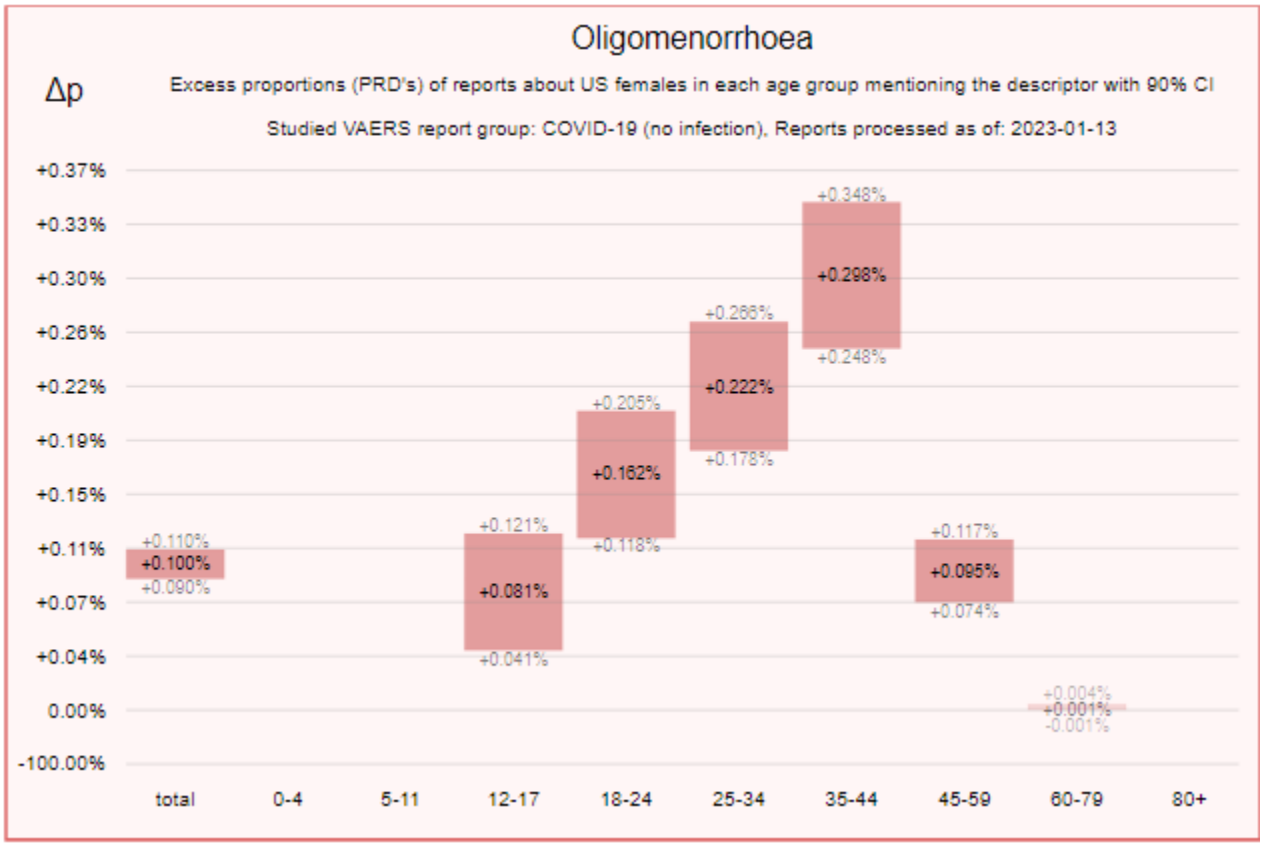
5.2.4.5 Delayed Menstruation



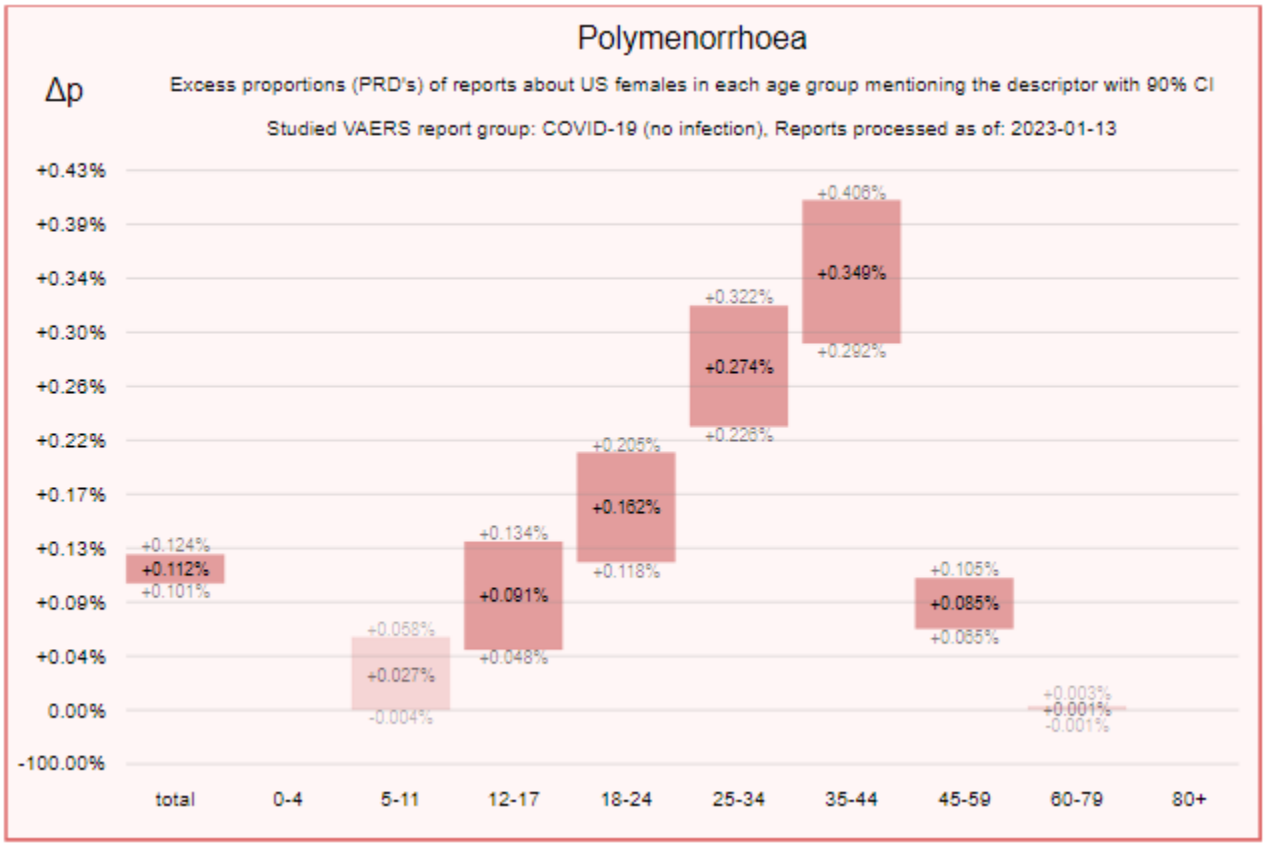
5.2.4.6 Dysmenorrhoea



5.2.4.7 Oligomenorrhoea

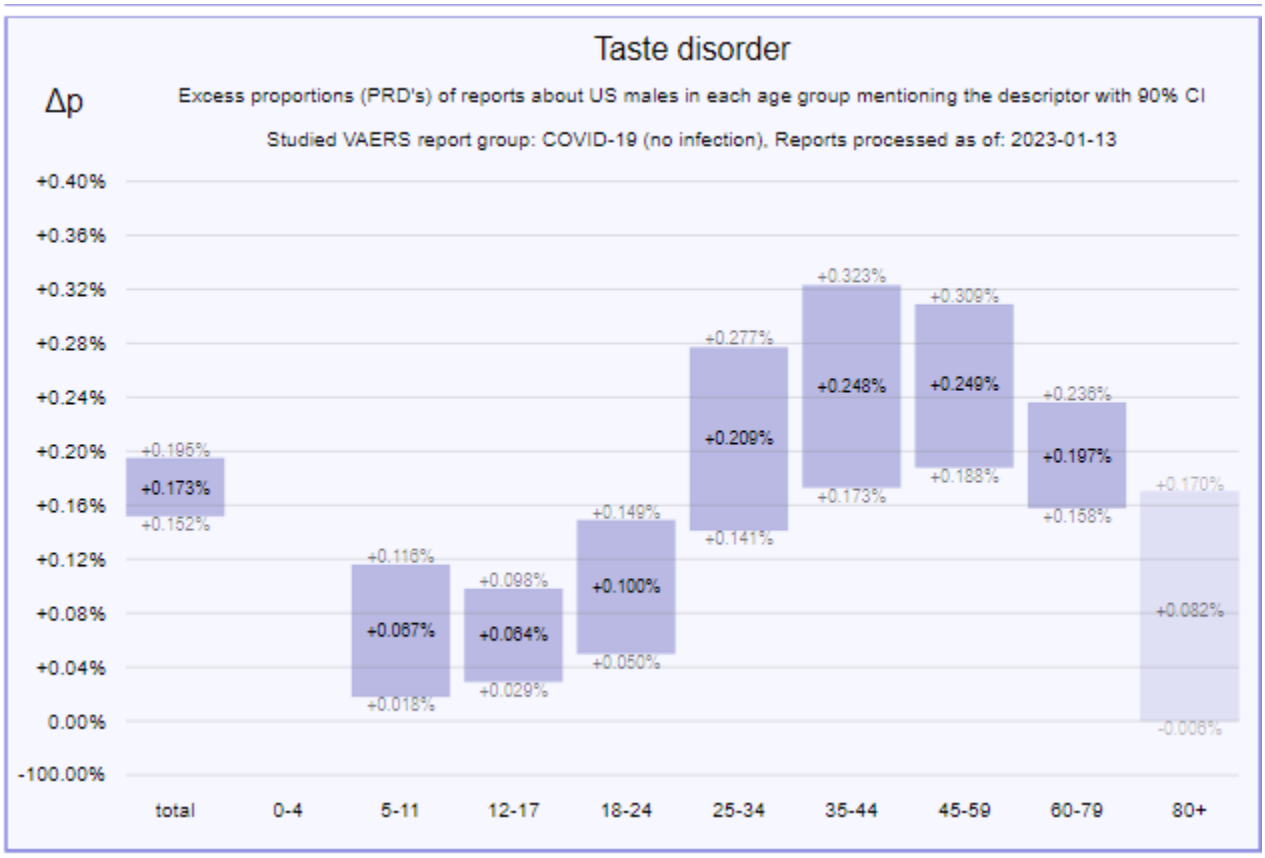


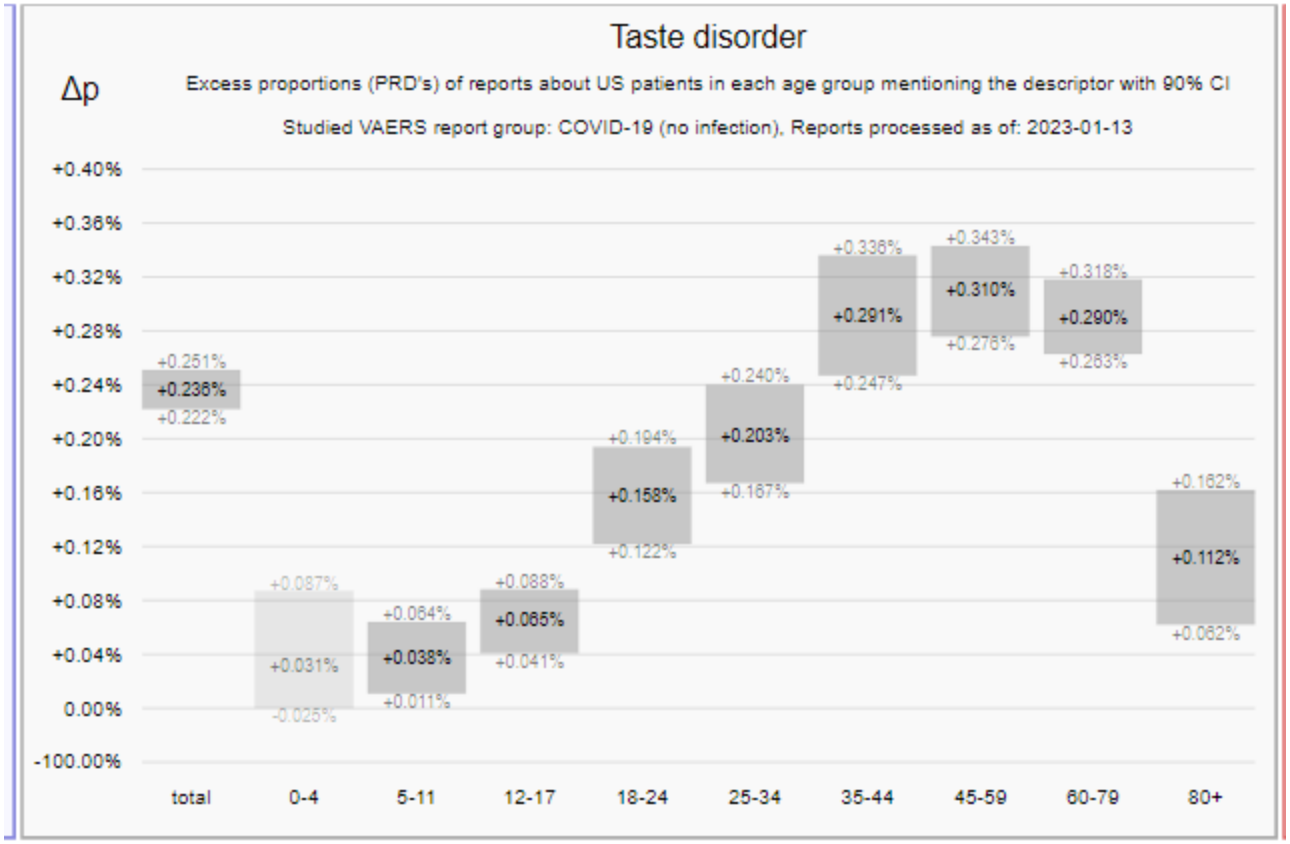
5.2.4.8 Polymenorrhoea

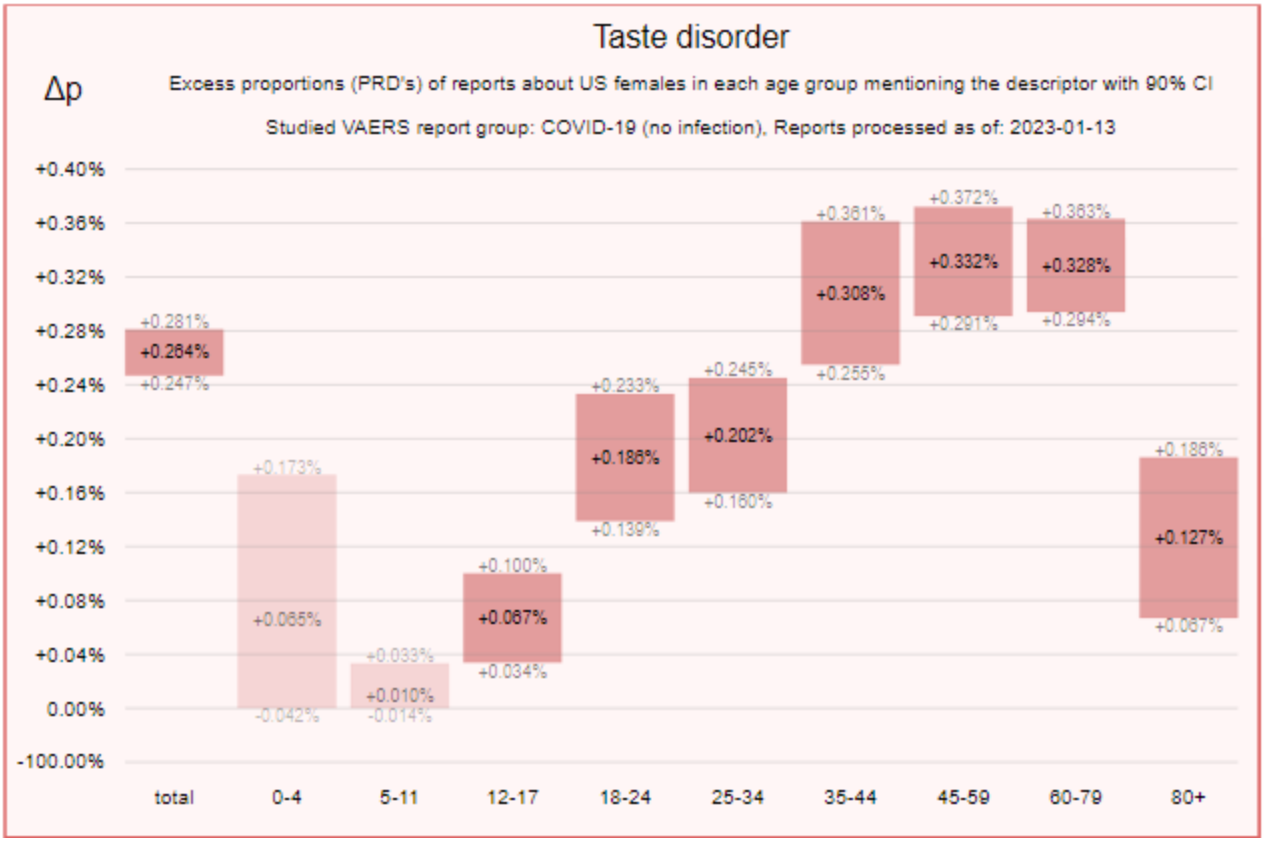


5.2.5 Nervous System

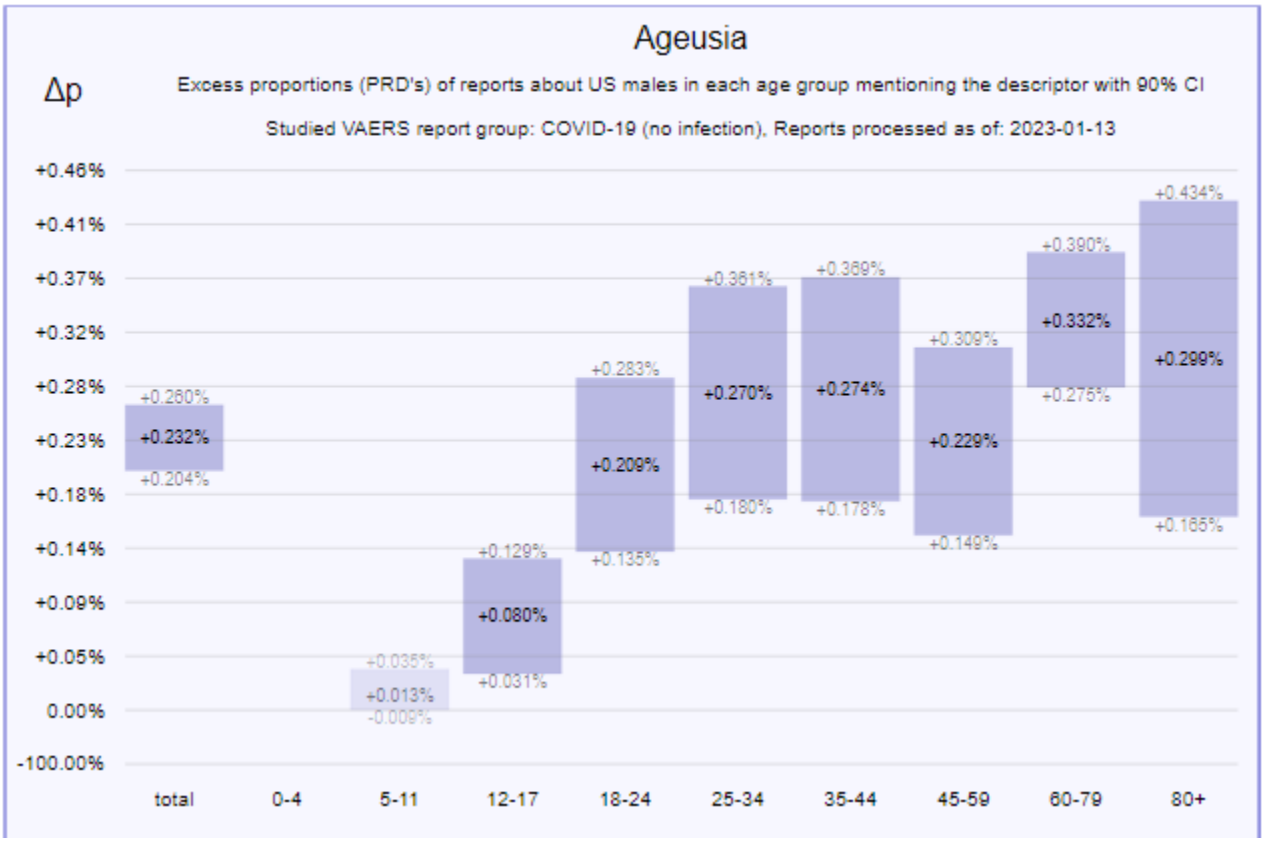
5.2.5.1 Taste Disorder

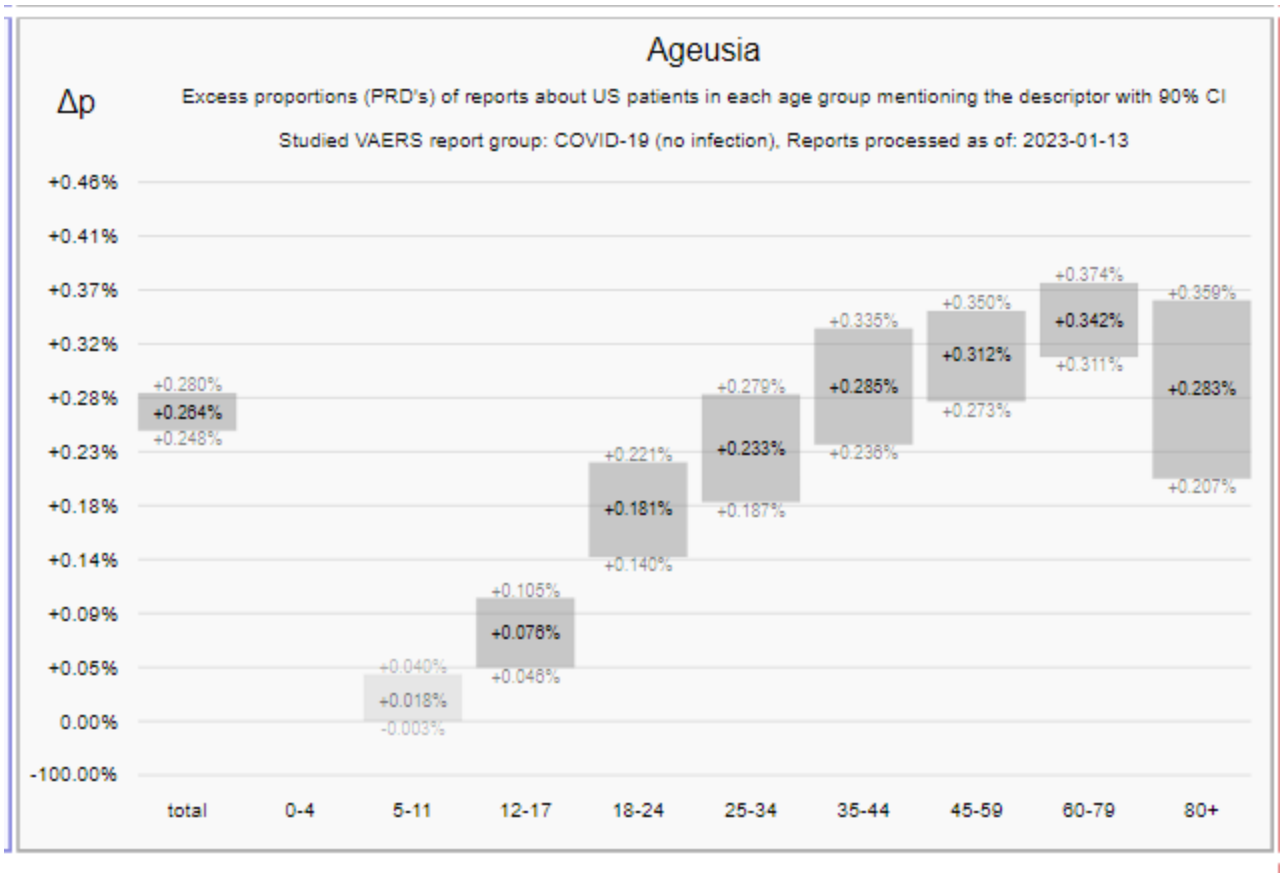


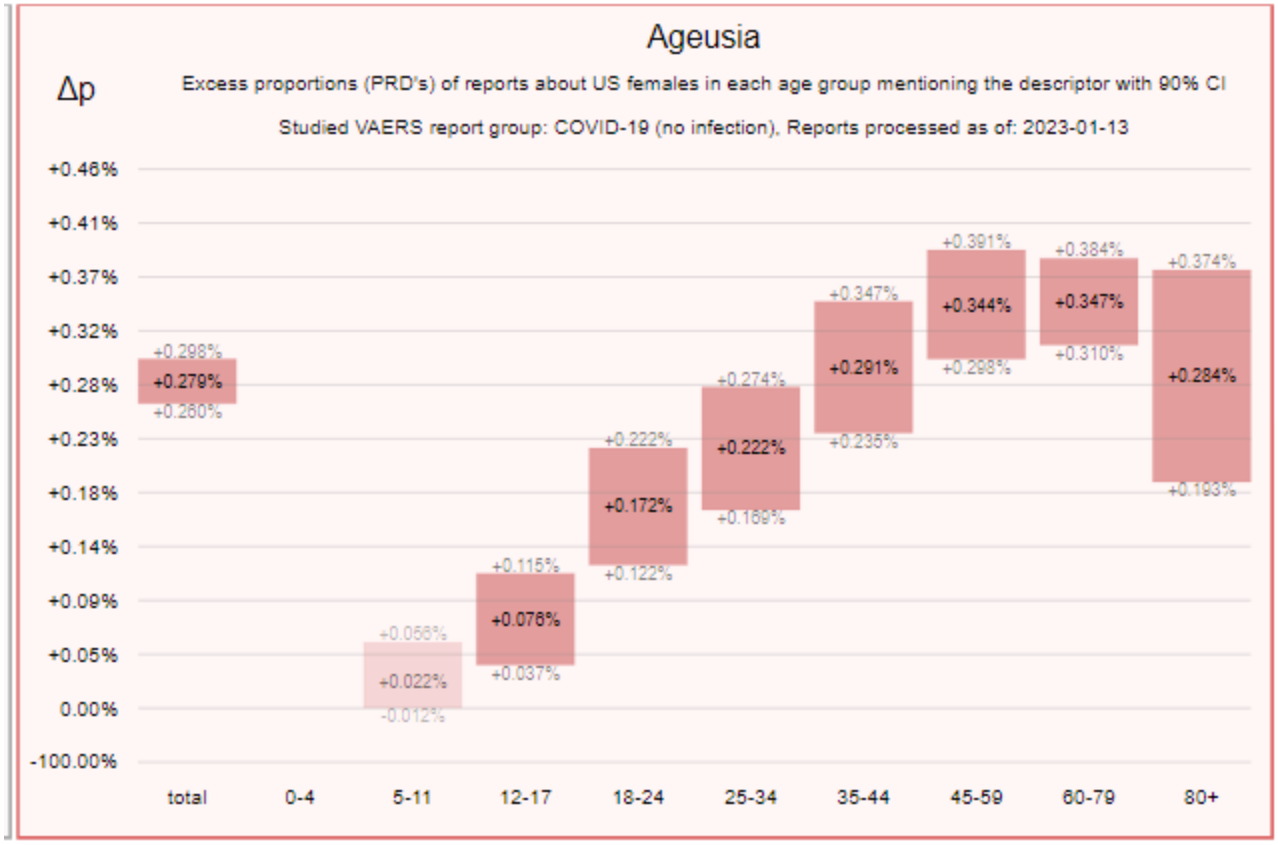

Taste disorder
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.40%
+0.36%
+0.32%
+0.28%
+0.24%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.251%
+0.236%
+0.222%
+0.087%
+0.031%
-0.025%
+0.064%
+0.038%
+0.011%
+0.088%
+0.065%
+0.041%
+0.194%
+0.158%
+0.122%
+0.240%
+0.203%
+0.167%
+0.336%
+0.291%
+0.247%
+0.343%
+0.310%
+0.276%
+0.318%
+0.290%
+0.263%
+0.162%
+0.112%
+0.062%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Taste disorder
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.40%
+0.36%
+0.32%
+0.28%
+0.24%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.281%
+0.264%
+0.247%
+0.173%
+0.065%
-0.042%
+0.033%
+0.010%
-0.014%
+0.100%
+0.067%
+0.034%
+0.233%
+0.186%
+0.139%
+0.245%
+0.202%
+0.160%
+0.361%
+0.308%
+0.255%
+0.372%
+0.332%
+0.291%
+0.363%
+0.328%
+0.294%
+0.186%
+0.127%
+0.067%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

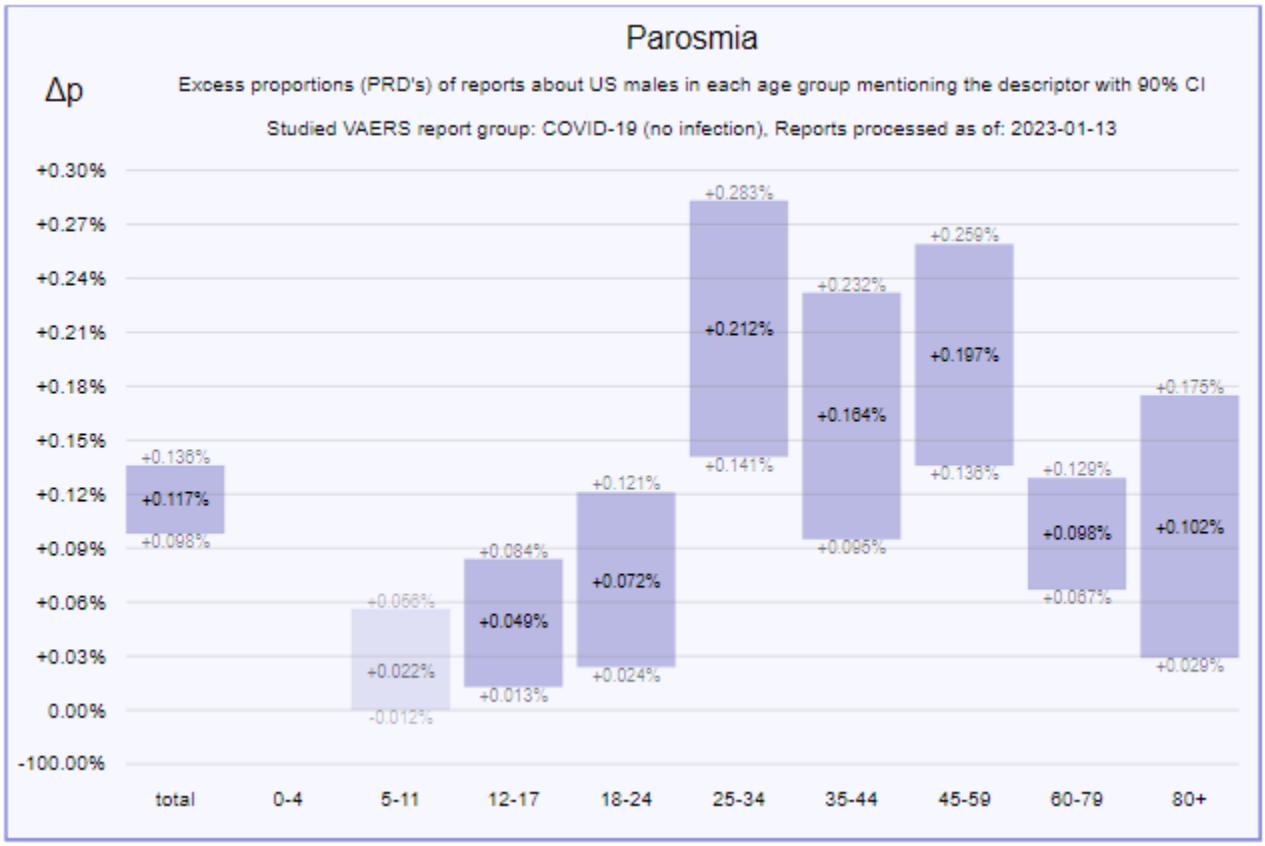
5.2.5.2 Ageusia

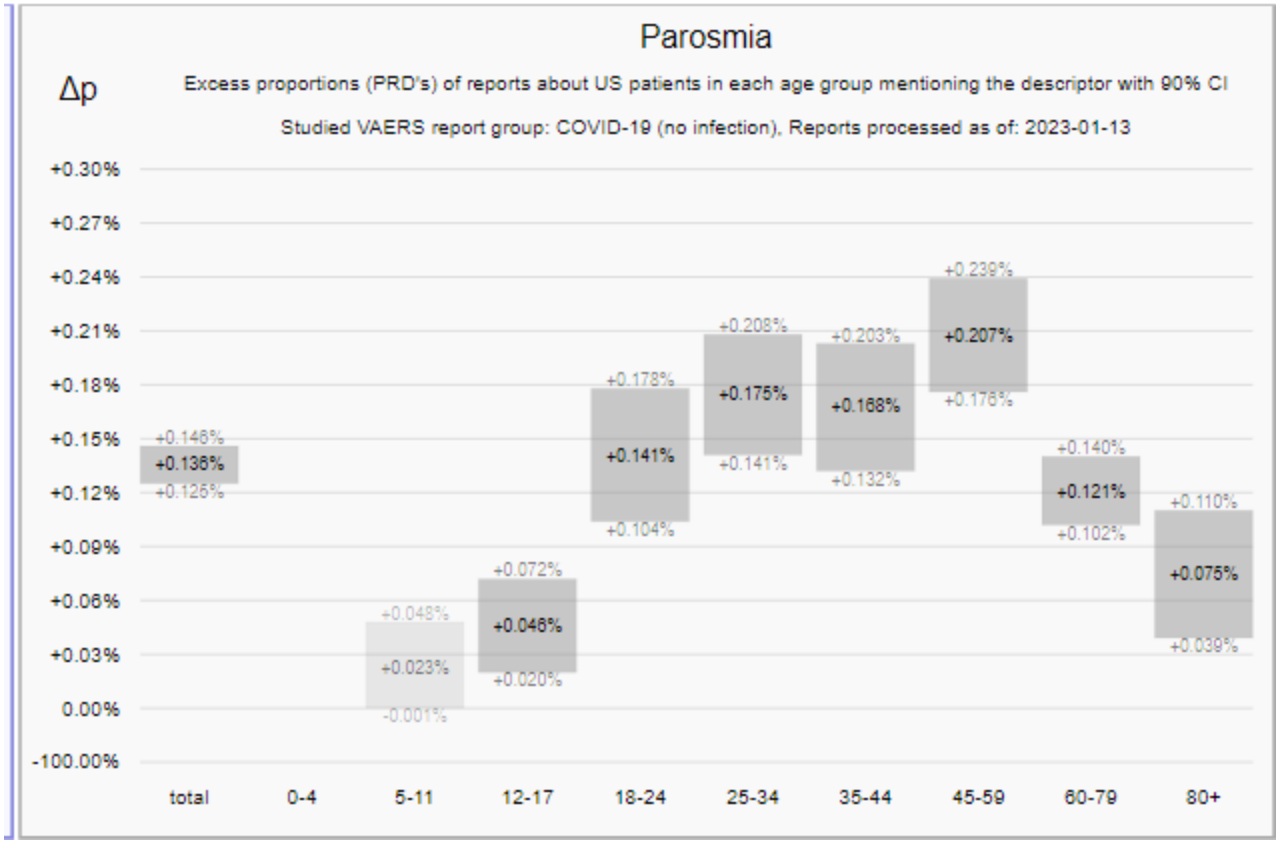


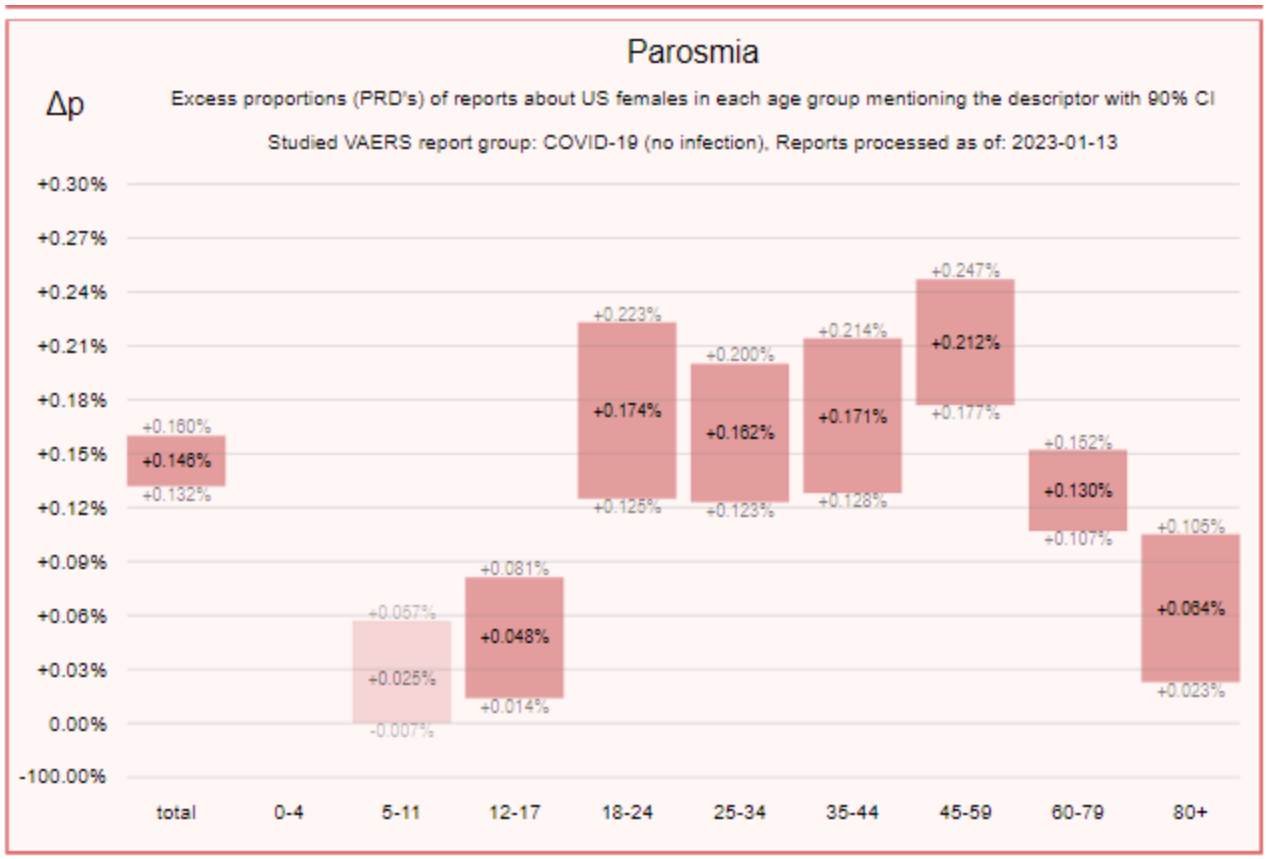

Ageusia
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.46%
+0.41%
+0.37%
+0.32%
+0.28%
+0.23%
+0.18%
+0.14%
+0.09%
+0.05%
0.00%
-100.00%
+0.280%
+0.264%
+0.248%
+0.040%
+0.018%
-0.003%
+0.105%
+0.076%
+0.046%
+0.221%
+0.181%
+0.140%
+0.279%
+0.233%
+0.187%
+0.335%
+0.285%
+0.236%
+0.350%
+0.312%
+0.273%
+0.374%
+0.342%
+0.311%
+0.359%
+0.283%
+0.207%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Ageusia
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.46%
+0.41%
+0.37%
+0.32%
+0.28%
+0.23%
+0.18%
+0.14%
+0.09%
+0.05%
0.00%
-100.00%
+0.298%
+0.279%
+0.260%
+0.056%
+0.022%
-0.012%
+0.115%
+0.076%
+0.037%
+0.222%
+0.172%
+0.122%
+0.274%
+0.222%
+0.169%
+0.347%
+0.291%
+0.235%
+0.391%
+0.344%
+0.298%
+0.384%
+0.347%
+0.310%
+0.374%
+0.284%
+0.193%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

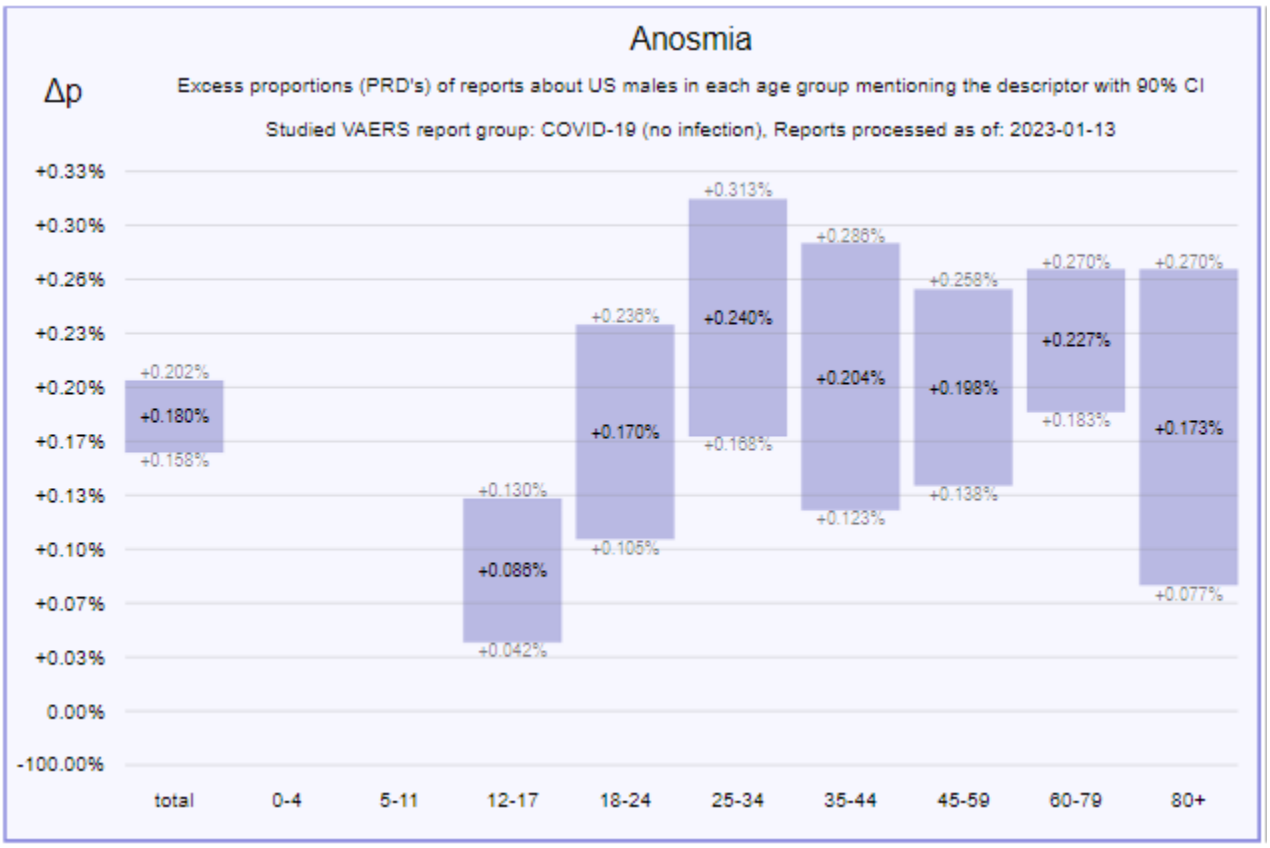
5.2.5.3 Parosmia

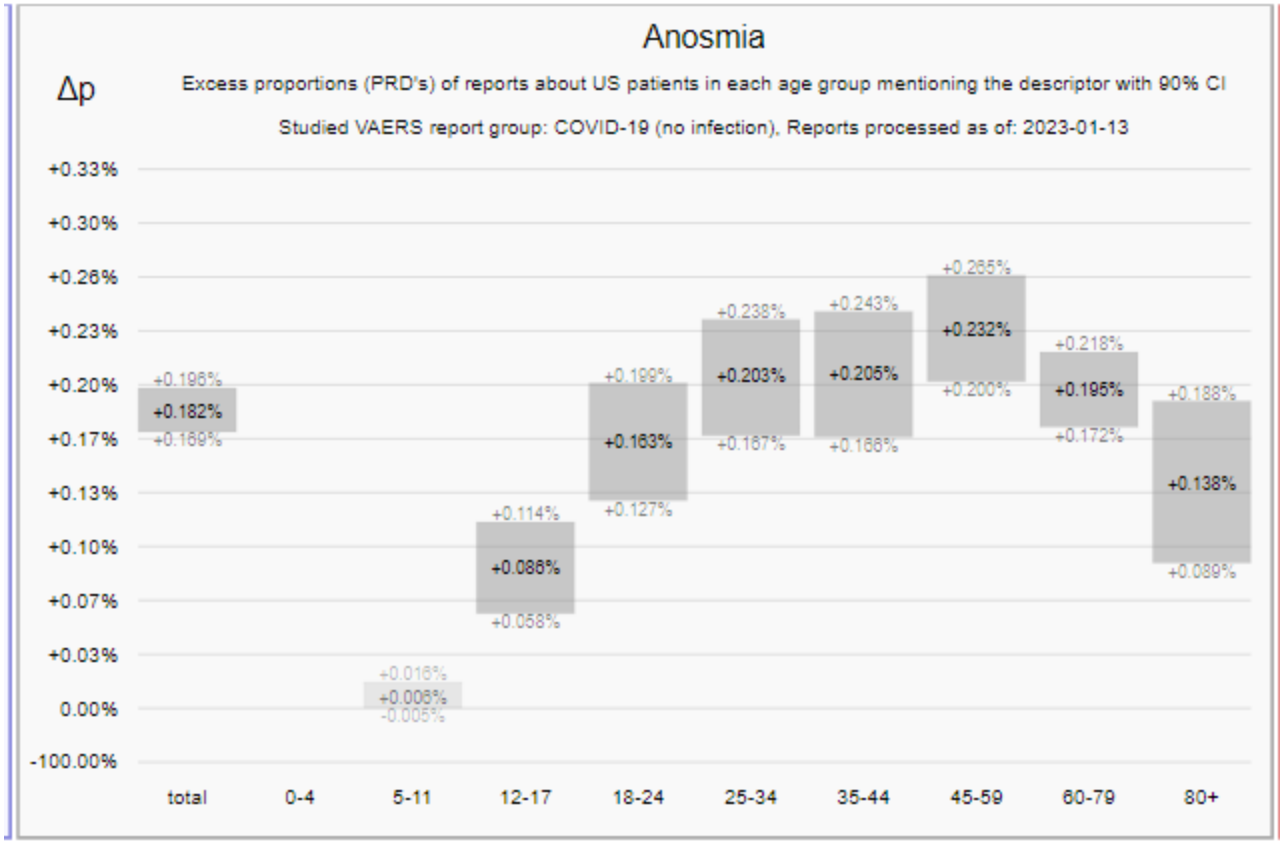


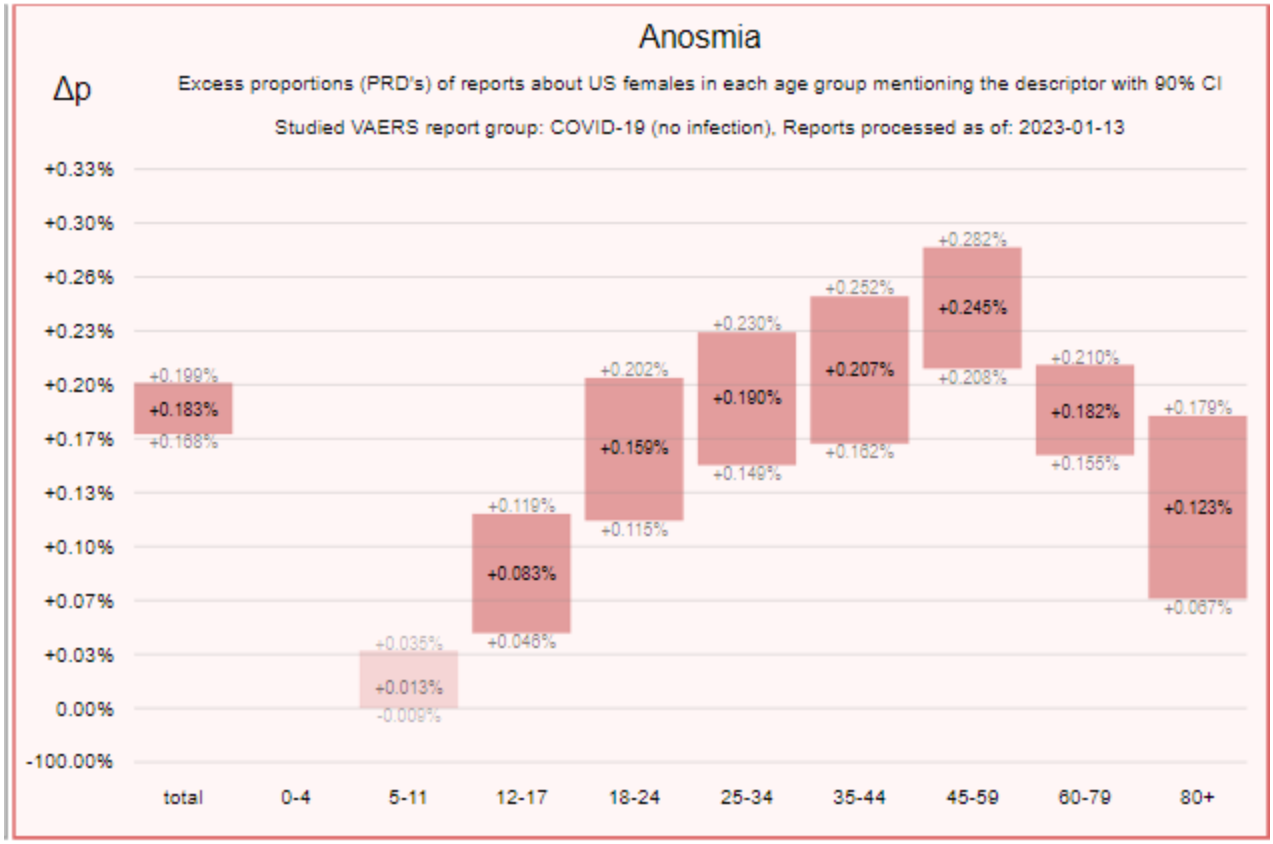

Parosmia
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.146%
+0.136%
+0.125%
+0.048%
+0.023%
-0.001%
+0.072%
+0.046%
+0.020%
+0.178%
+0.141%
+0.104%
+0.208%
+0.175%
+0.141%
+0.203%
+0.168%
+0.132%
+0.239%
+0.207%
+0.176%
+0.140%
+0.121%
+0.102%
+0.110%
+0.075%
+0.039%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Parosmia
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.160%
+0.146%
+0.132%
+0.057%
+0.025%
-0.007%
+0.081%
+0.048%
+0.014%
+0.223%
+0.174%
+0.125%
+0.200%
+0.162%
+0.123%
+0.214%
+0.171%
+0.128%
+0.247%
+0.212%
+0.177%
+0.152%
+0.130%
+0.107%
+0.105%
+0.064%
+0.023%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

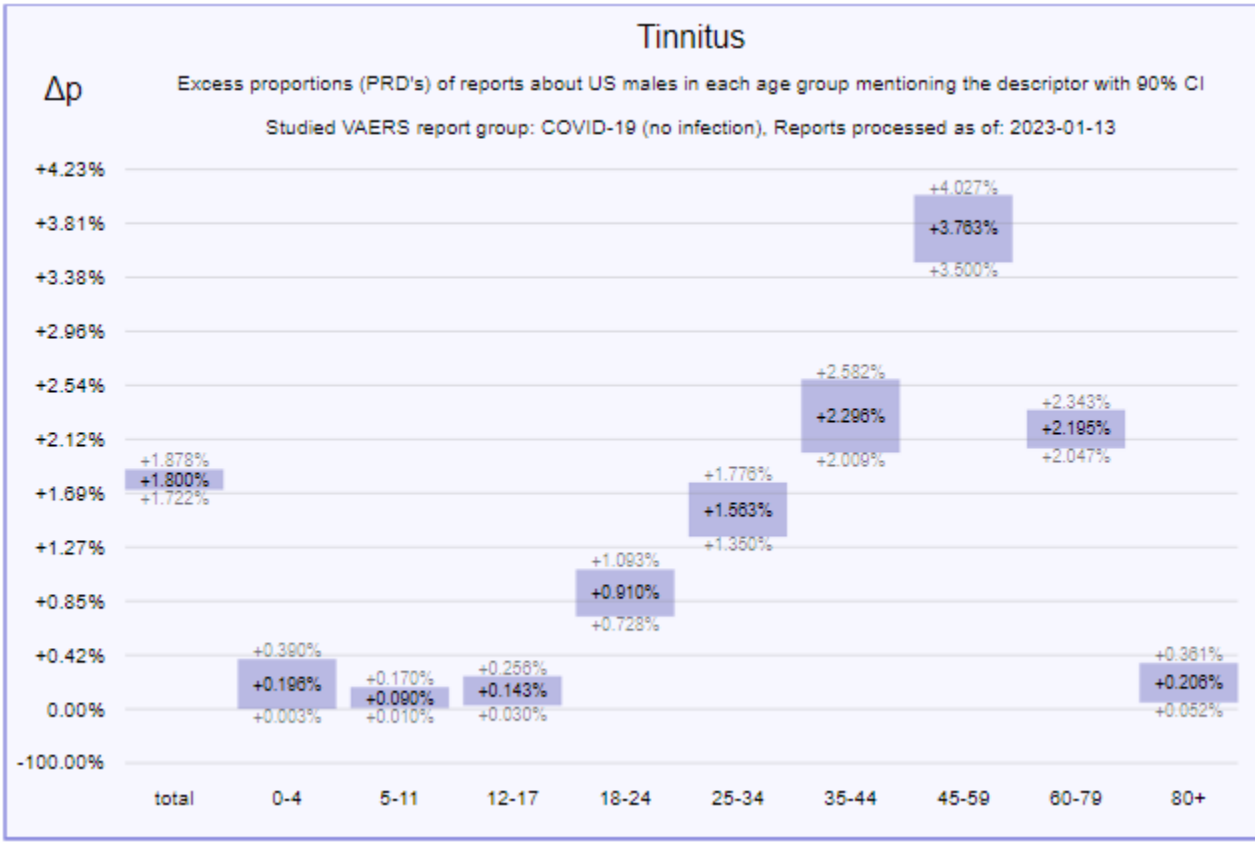
5.2.5.4 Anosmia

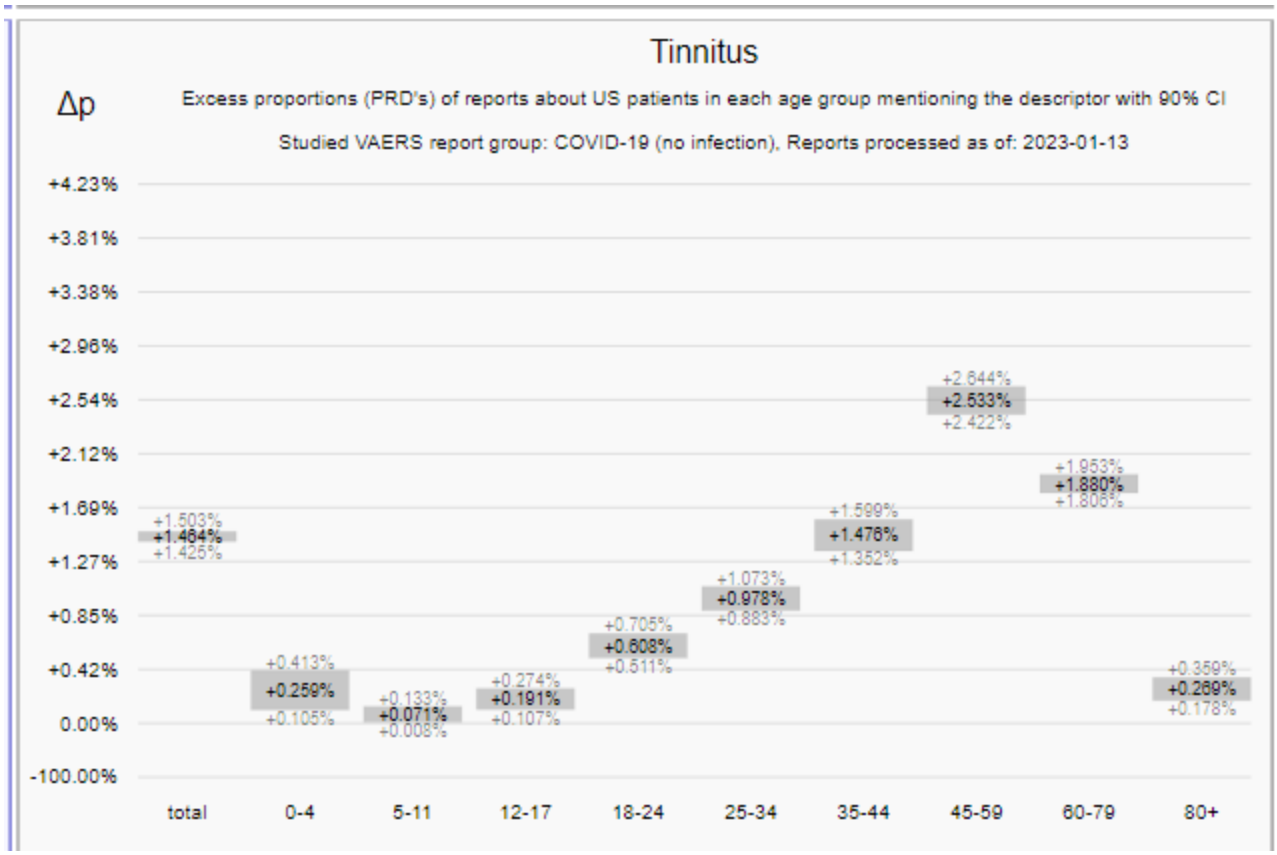


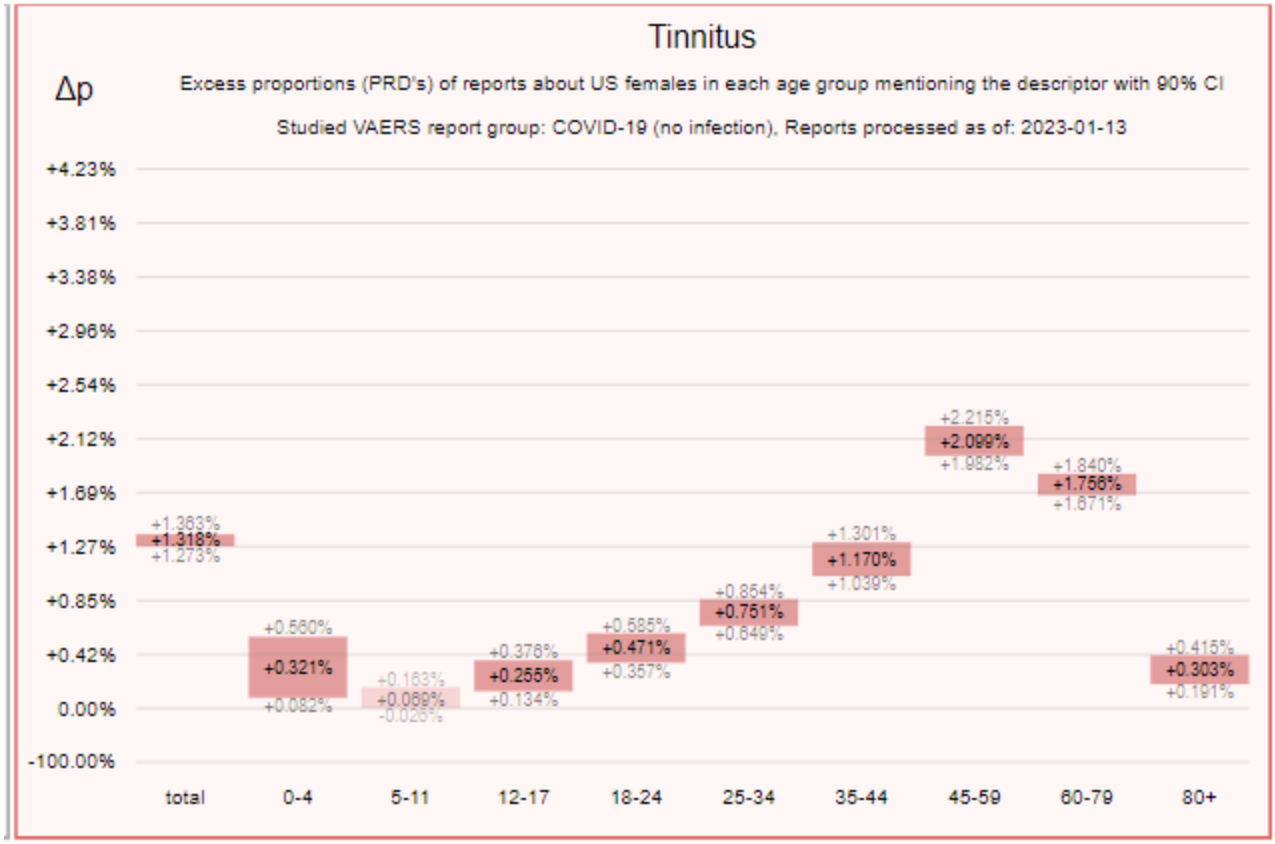

Anosmia
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.33%
+0.30%
+0.26%
+0.23%
+0.20%
+0.17%
+0.13%
+0.10%
+0.07%
+0.03%
0.00%
-100.00%
+0.196%
+0.182%
+0.169%
+0.016%
+0.006%
-0.005%
+0.114%
+0.086%
+0.058%
+0.199%
+0.163%
+0.127%
+0.238%
+0.203%
+0.167%
+0.243%
+0.205%
+0.166%
+0.265%
+0.232%
+0.200%
+0.218%
+0.195%
+0.172%
+0.188%
+0.138%
+0.089%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Anosmia
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.33%
+0.30%
+0.26%
+0.23%
+0.20%
+0.17%
+0.13%
+0.10%
+0.07%
+0.03%
0.00%
-100.00%
+0.199%
+0.183%
+0.168%
+0.035%
+0.013%
-0.009%
+0.119%
+0.083%
+0.046%
+0.202%
+0.159%
+0.115%
+0.230%
+0.190%
+0.149%
+0.252%
+0.207%
+0.162%
+0.282%
+0.245%
+0.208%
+0.210%
+0.182%
+0.155%
+0.179%
+0.123%
+0.067%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

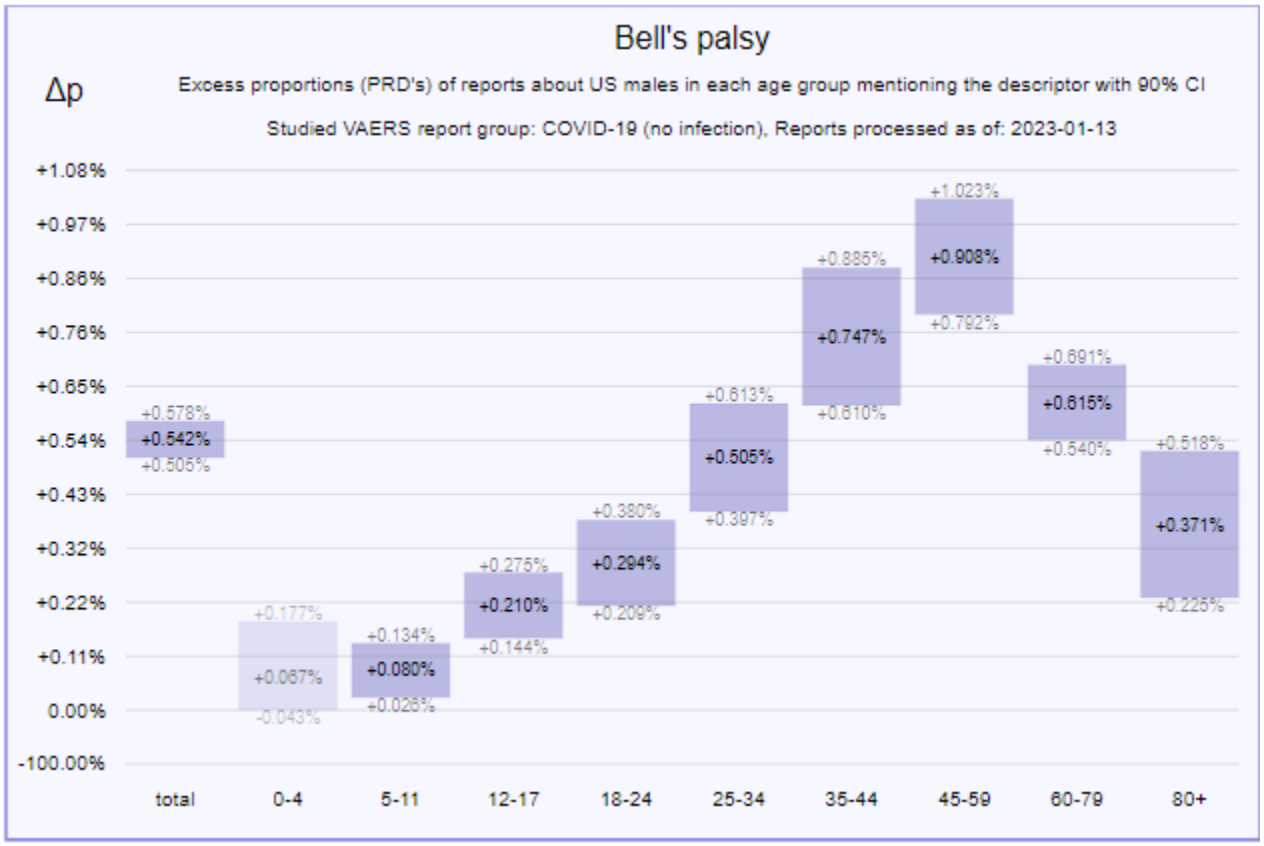
5.2.5.5 Tinnitus

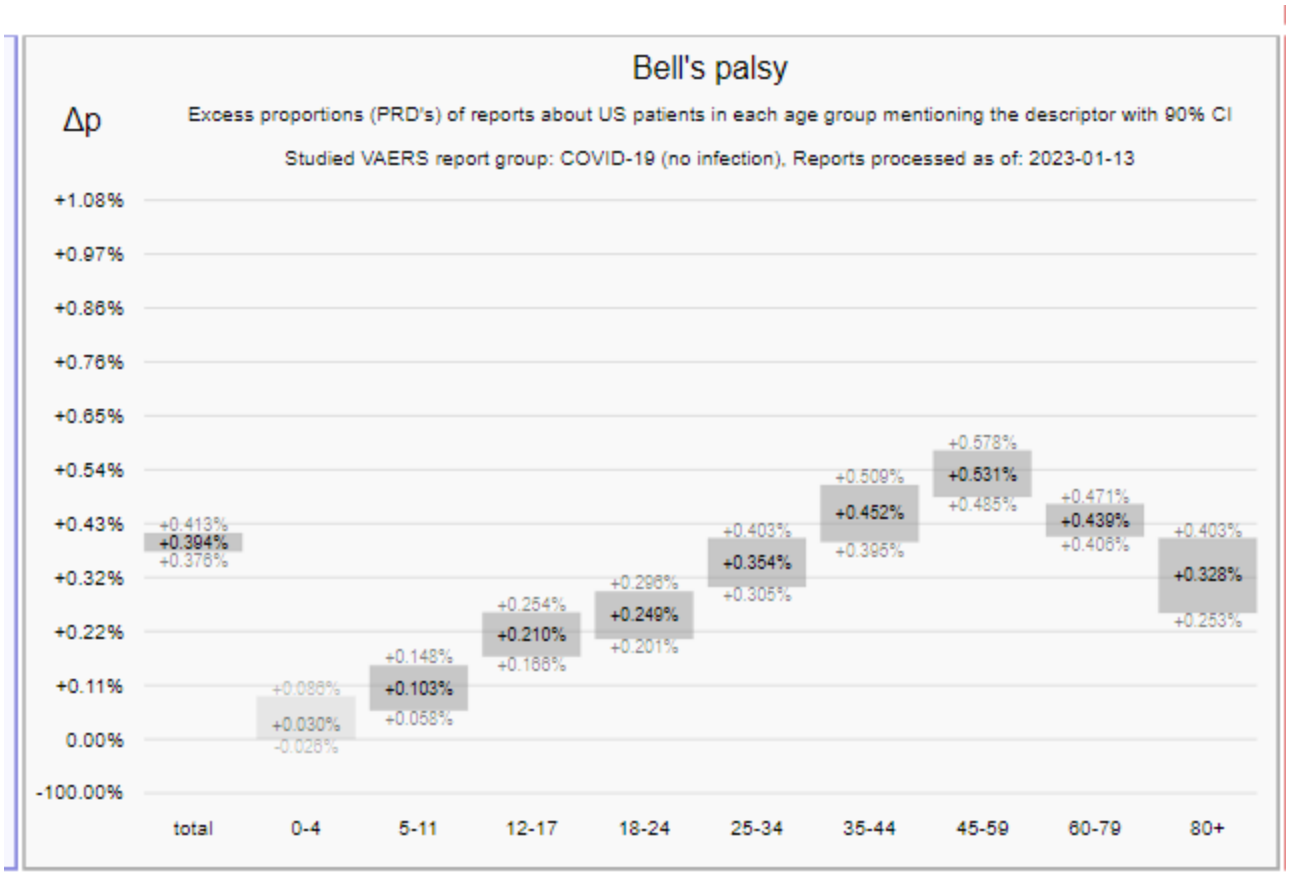


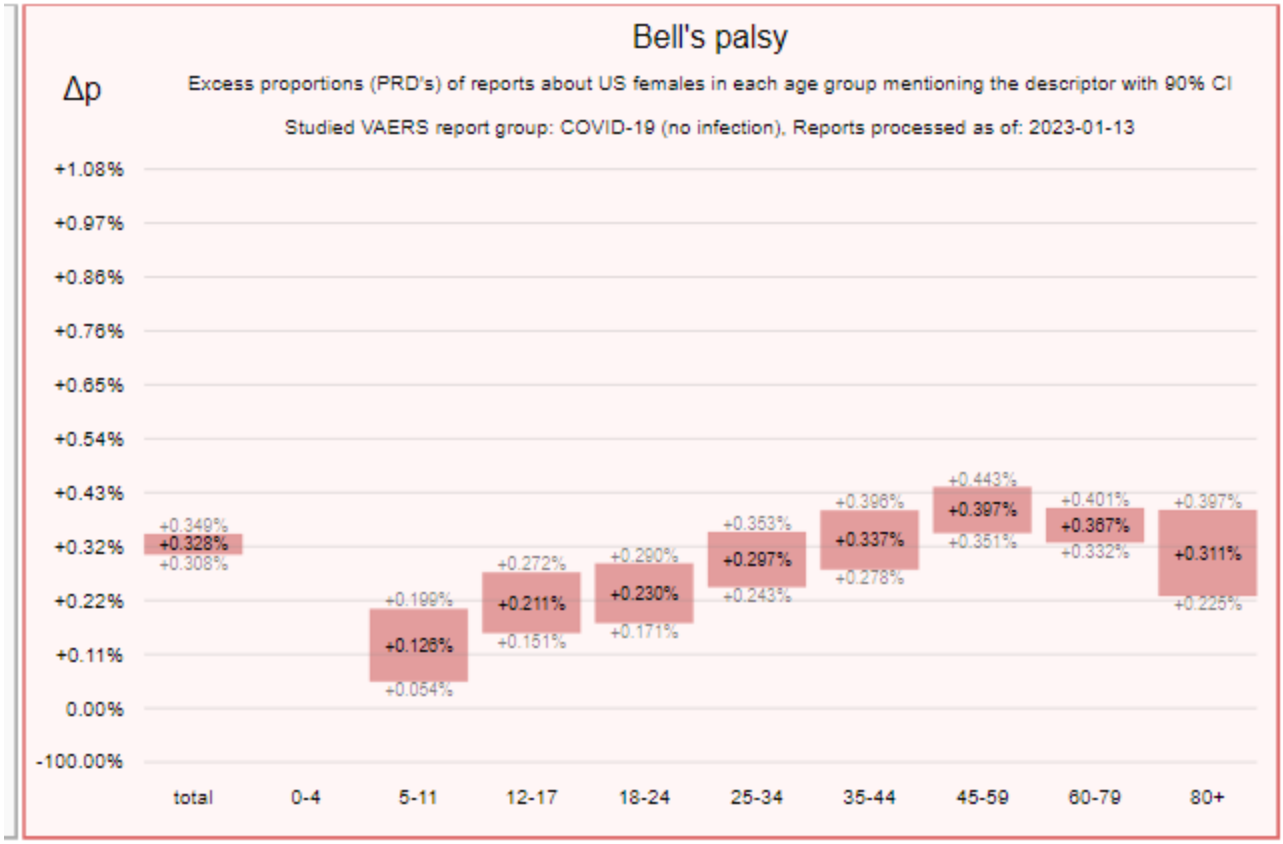

Tinnitus
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+4.23%
+3.81%
+3.38%
+2.96%
+2.54%
+2.12%
+1.69%
+1.27%
+0.85%
+0.42%
0.00%
-100.00%
+1.503% +1.464% +1.426%
+0.413% +0.259% +0.105%
+0.133% +0.071% +0.008%
+0.274% +0.191% +0.107%
+0.705% +0.608% +0.511%
+1.073% +0.978% +0.883%
+1.599% +1.476% +1.352%
+2.644% +2.533% +2.422%
+1.953% +1.880% +1.806%
+0.359% +0.269% +0.178%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Tinnitus
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+4.23%
+3.81%
+3.38%
+2.96%
+2.54%
+2.12%
+1.69%
+1.27%
+0.85%
+0.42%
0.00%
-100.00%
+1.363%
+1.318%
+1.273%
+0.560%
+0.321%
+0.082%
+0.163%
+0.069%
-0.026%
+0.376%
+0.255%
+0.134%
+0.585%
+0.471%
+0.357%
+0.854%
+0.751%
+0.649%
+1.301%
+1.170%
+1.039%
+2.215%
+2.099%
+1.982%
+1.840%
+1.756%
+1.671%
+0.415%
+0.303%
+0.191%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

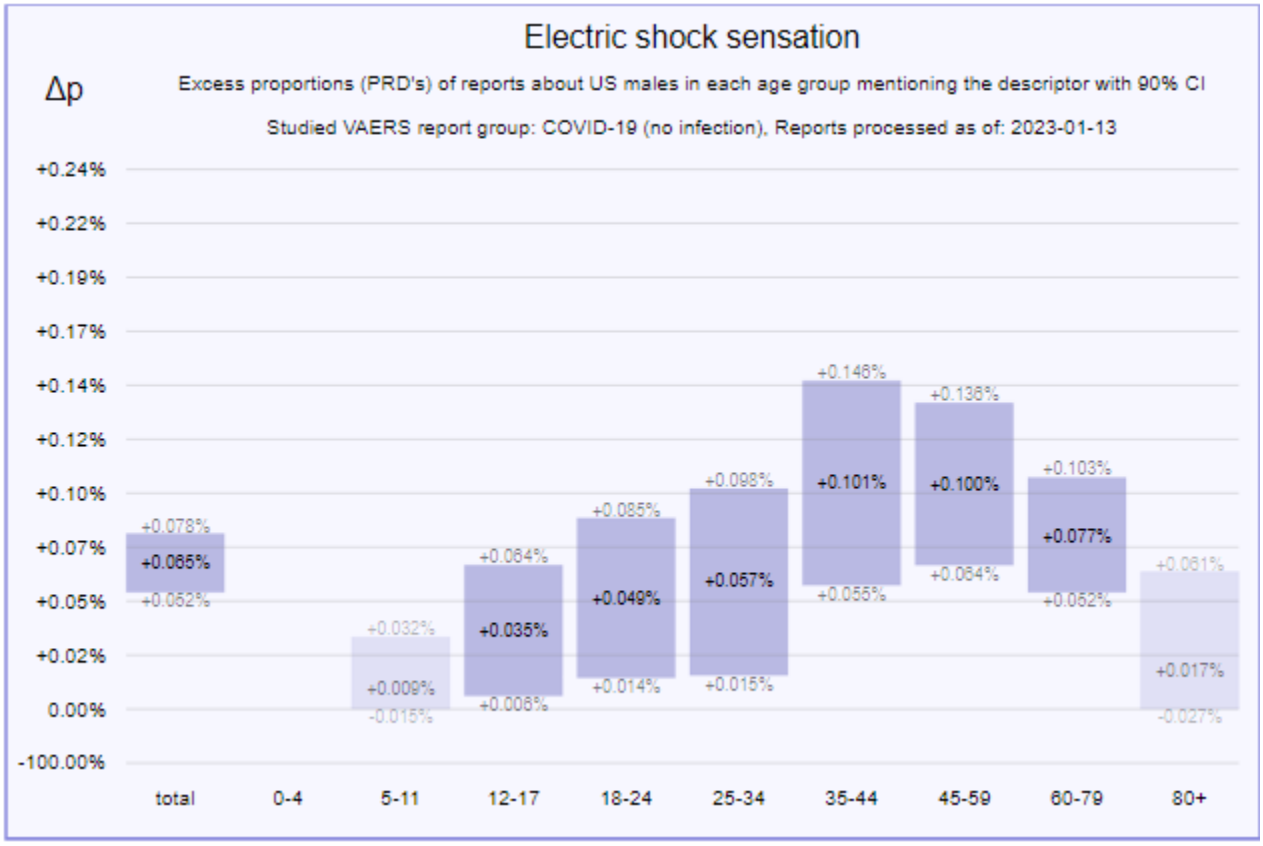
5.2.5.6 Bell's Palsy

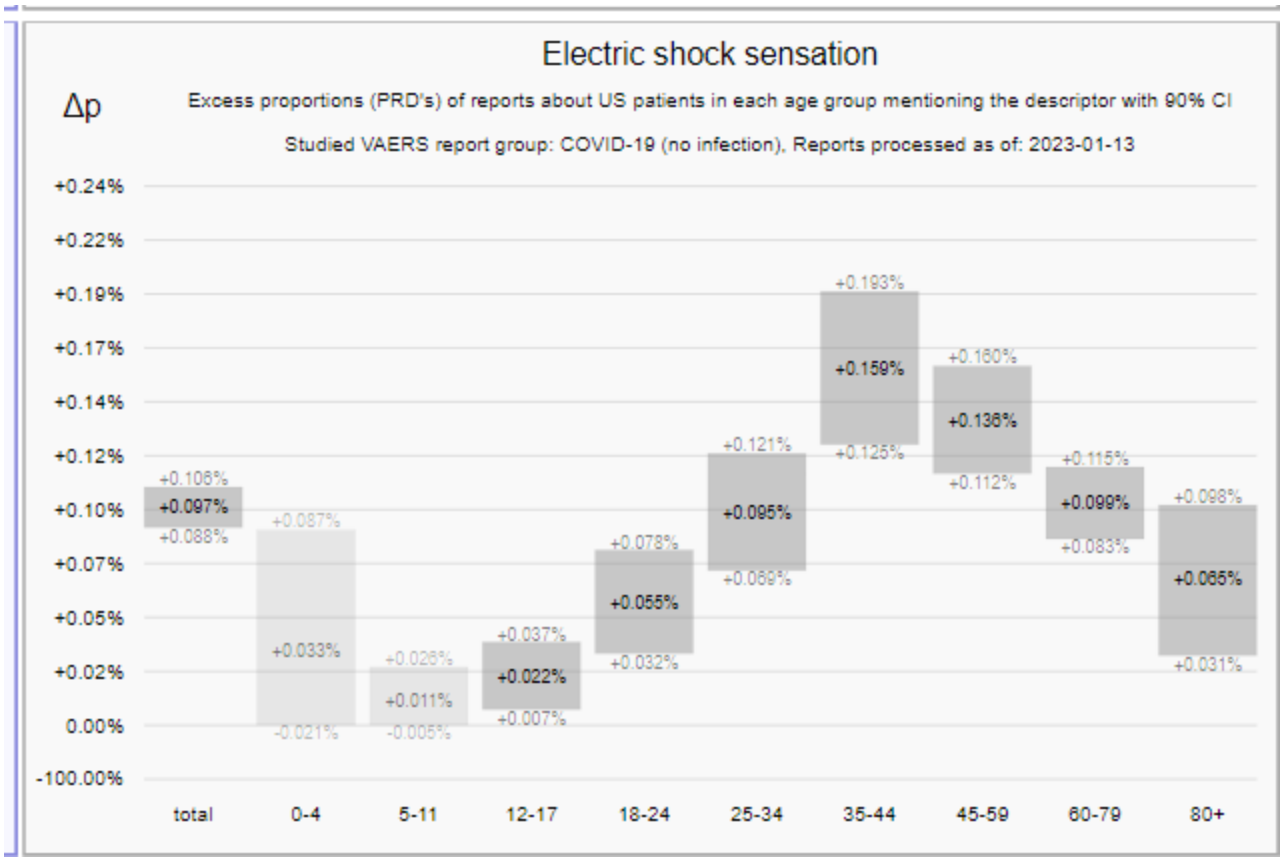


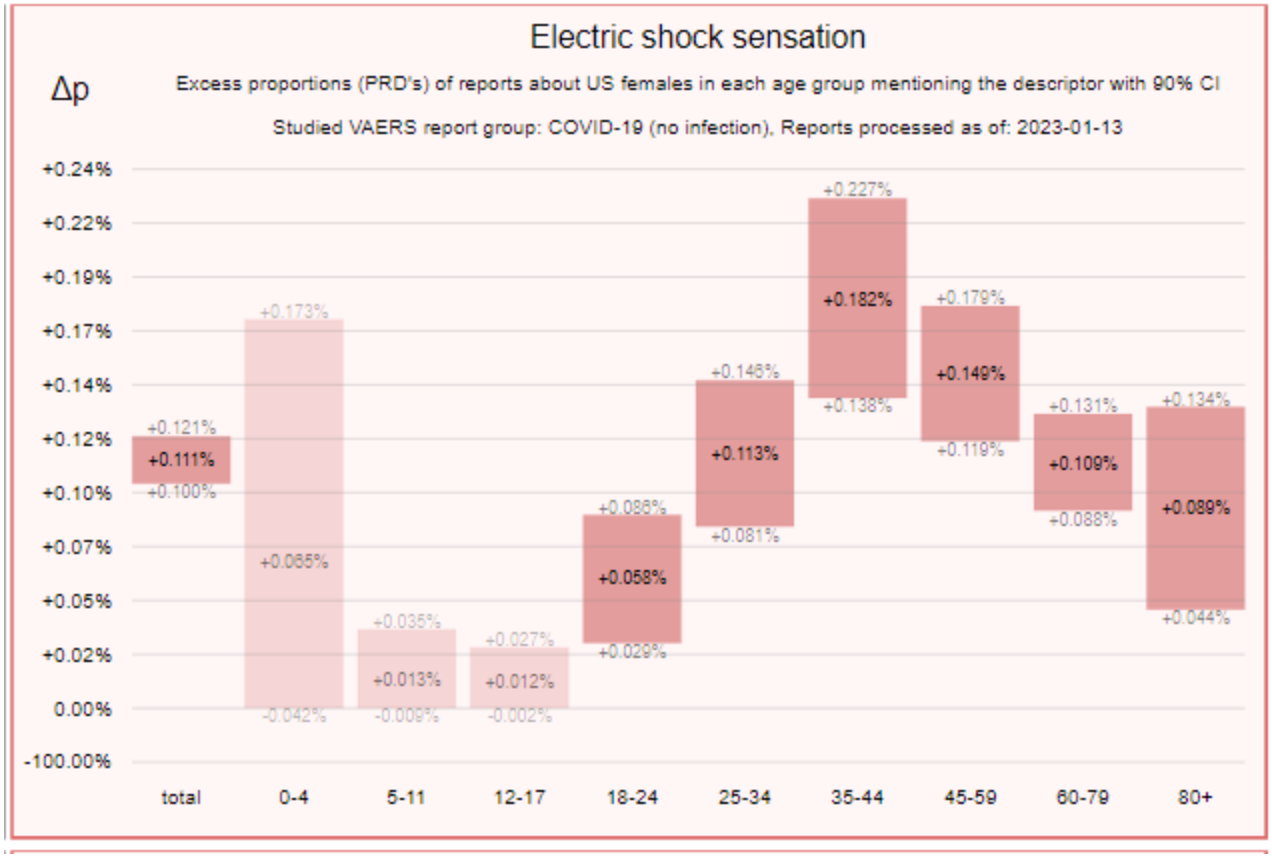

Bell's palsy
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.08%
+0.97%
+0.86%
+0.76%
+0.65%
+0.54%
+0.43%
+0.32%
+0.22%
+0.11%
0.00%
-100.00%
+0.413%
+0.394%
+0.376%
+0.030%
-0.026%
+0.148%
+0.103%
+0.058%
+0.254%
+0.210%
+0.166%
+0.296%
+0.249%
+0.201%
+0.403%
+0.354%
+0.305%
+0.509%
+0.452%
+0.395%
+0.578%
+0.531%
+0.485%
+0.471%
+0.439%
+0.406%
+0.403%
+0.328%
+0.253%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Bell's palsy
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.08%
+0.97%
+0.86%
+0.76%
+0.65%
+0.54%
+0.43%
+0.32%
+0.22%
+0.11%
0.00%
-100.00%
+0.349%
+0.328%
+0.308%
+0.199%
+0.126%
+0.054%
+0.272%
+0.211%
+0.151%
+0.290%
+0.230%
+0.171%
+0.353%
+0.297%
+0.243%
+0.396%
+0.337%
+0.278%
+0.443%
+0.397%
+0.351%
+0.401%
+0.367%
+0.332%
+0.397%
+0.311%
+0.225%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

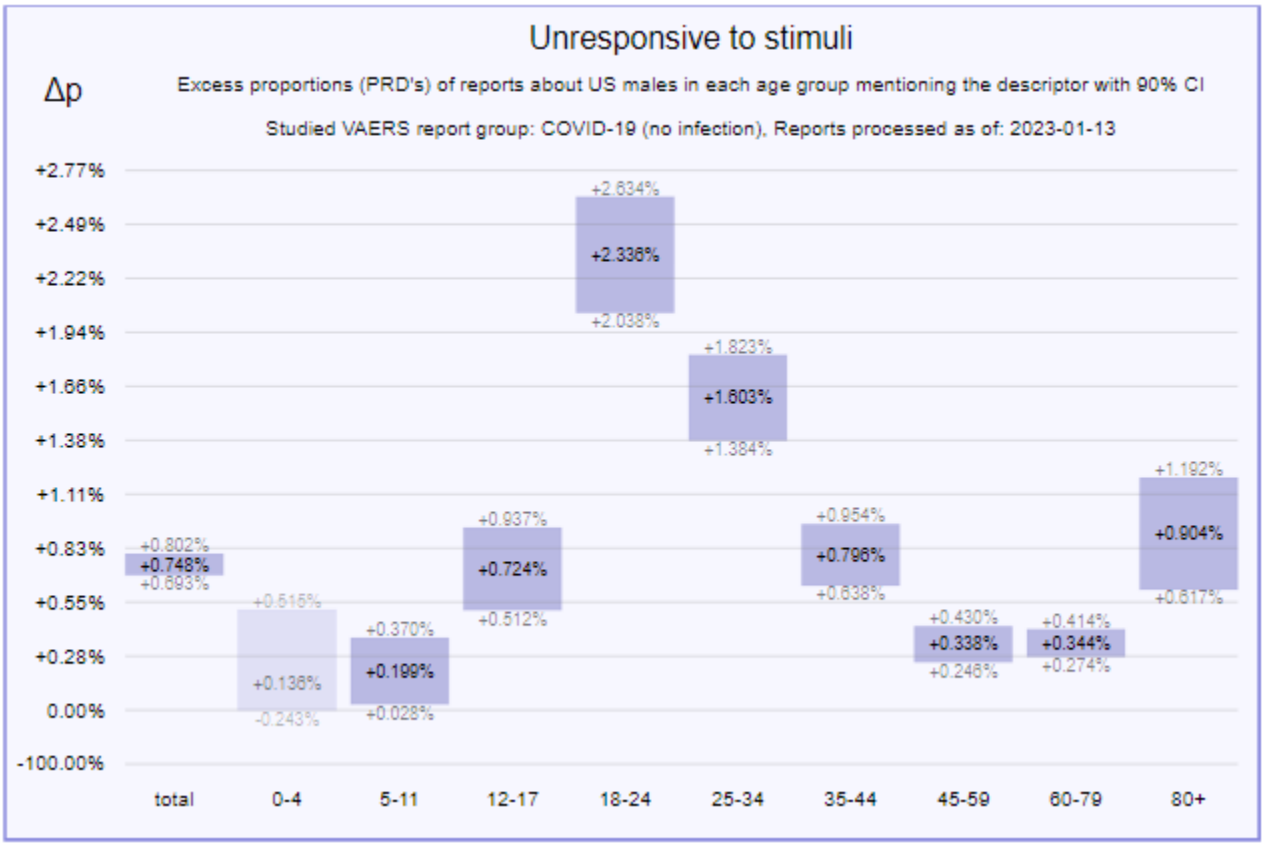
5.2.5.7 Electric Shock Sensation

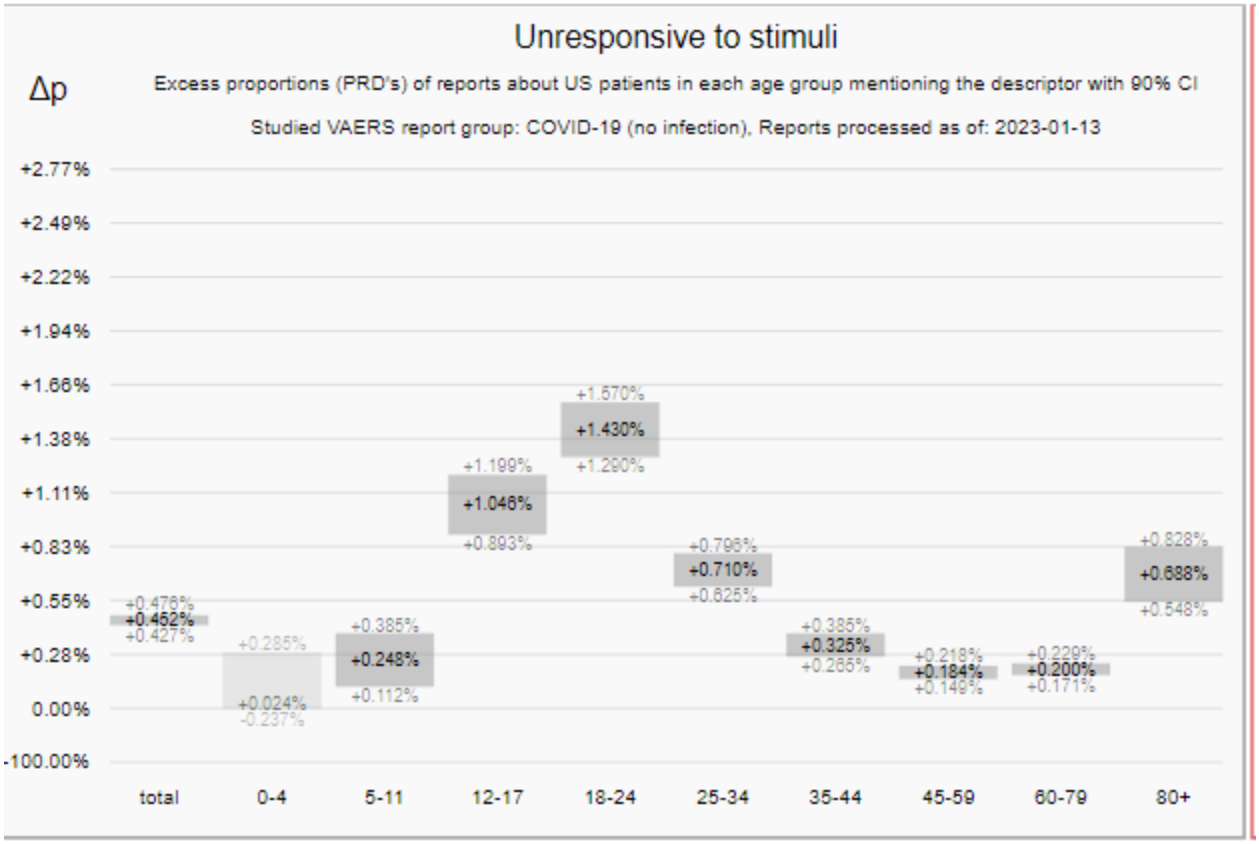


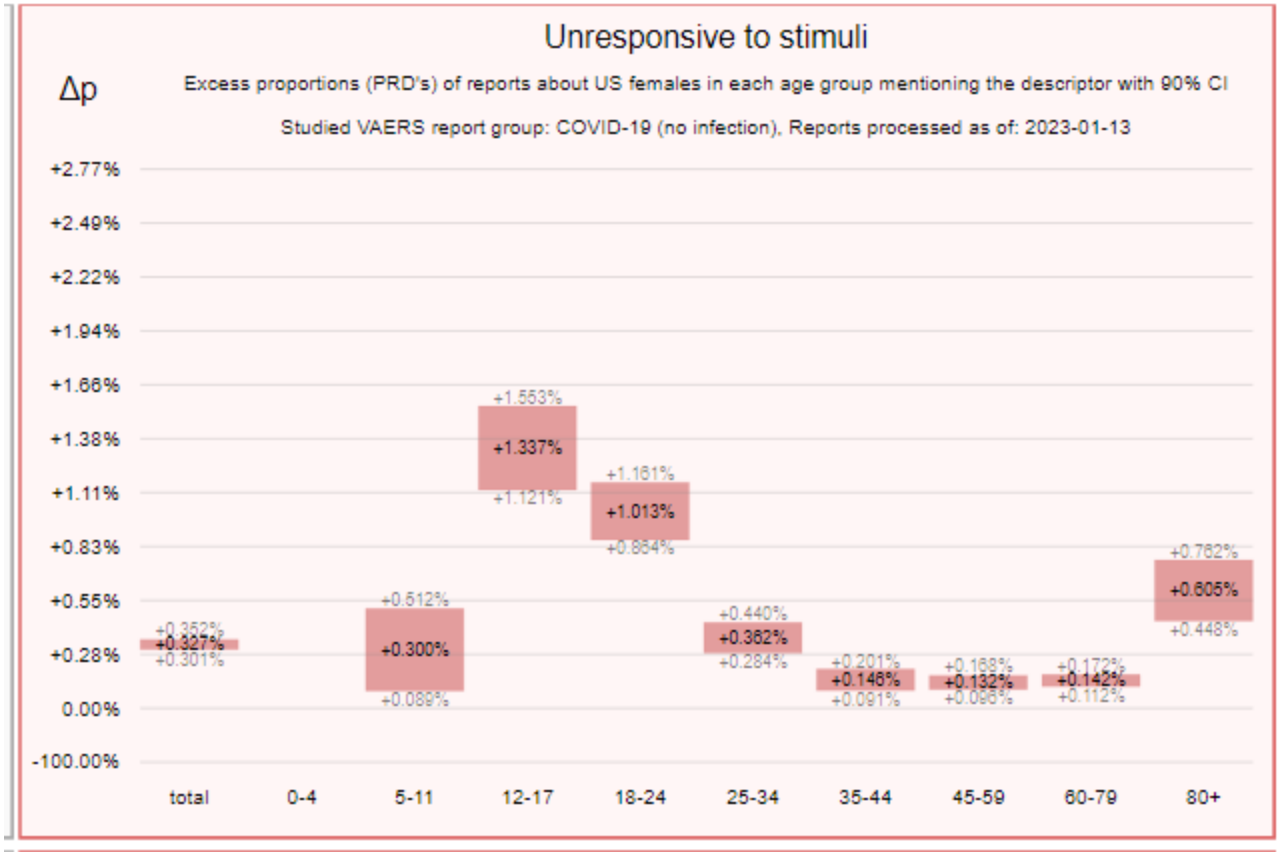

Electric shock sensation
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.24%
+0.22%
+0.19%
+0.17%
+0.14%
+0.12%
+0.10%
+0.07%
+0.05%
+0.02%
0.00%
-100.00%
+0.106%
+0.097%
+0.088%
+0.087%
+0.033%
-0.021%
+0.028%
+0.011%
-0.005%
+0.037%
+0.022%
+0.007%
+0.078%
+0.055%
+0.032%
+0.121%
+0.095%
+0.069%
+0.193%
+0.159%
+0.125%
+0.160%
+0.136%
+0.112%
+0.115%
+0.099%
+0.083%
+0.098%
+0.065%
+0.031%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Electric shock sensation
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.24%
+0.22%
+0.19%
+0.17%
+0.14%
+0.12%
+0.10%
+0.07%
+0.05%
+0.02%
0.00%
-100.00%
+0.121%
+0.111%
+0.100%
+0.173%
+0.065%
-0.042%
+0.035%
+0.013%
-0.009%
+0.027%
+0.012%
-0.002%
+0.086%
+0.058%
+0.029%
+0.146%
+0.113%
+0.081%
+0.227%
+0.182%
+0.138%
+0.179%
+0.149%
+0.119%
+0.131%
+0.109%
+0.088%
+0.134%
+0.089%
+0.044%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

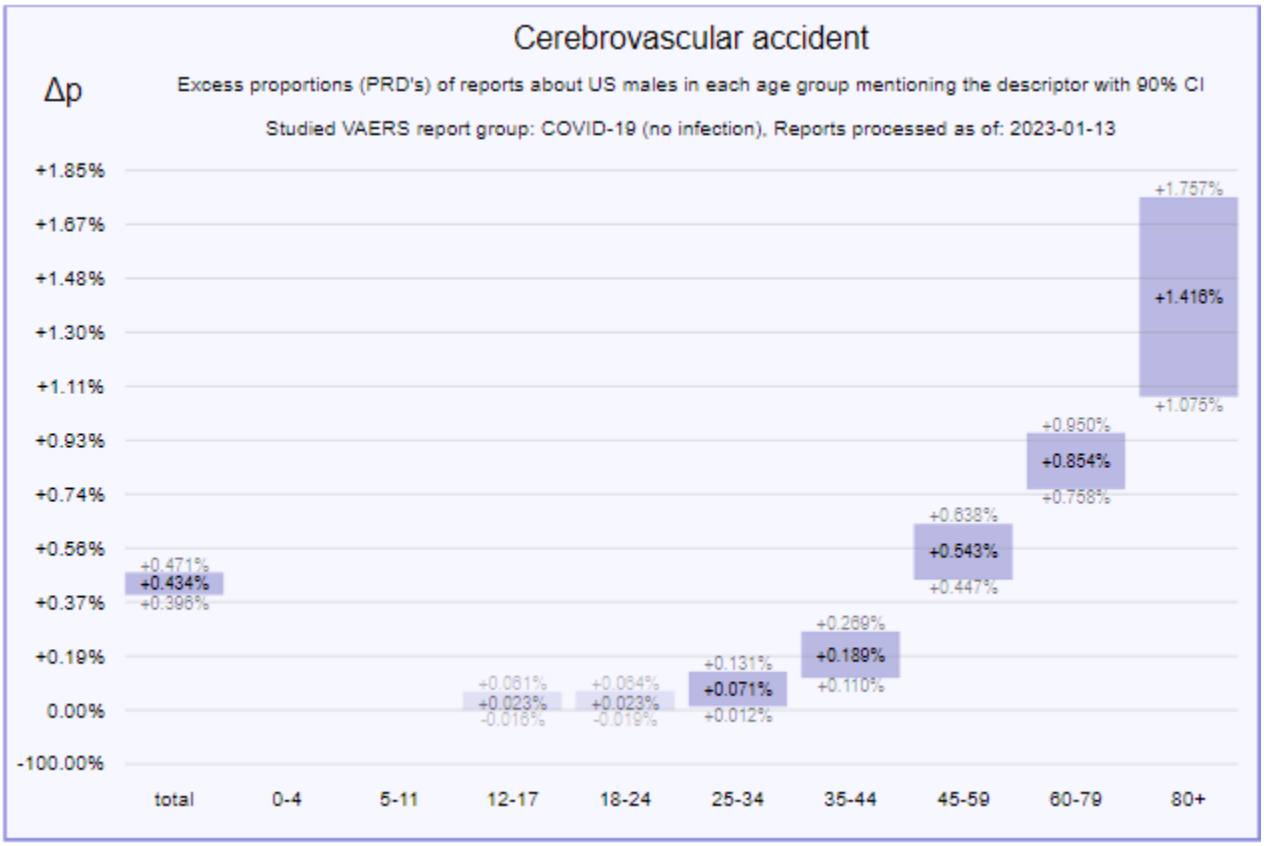
5.2.5.8 Unresponsive to Stimuli

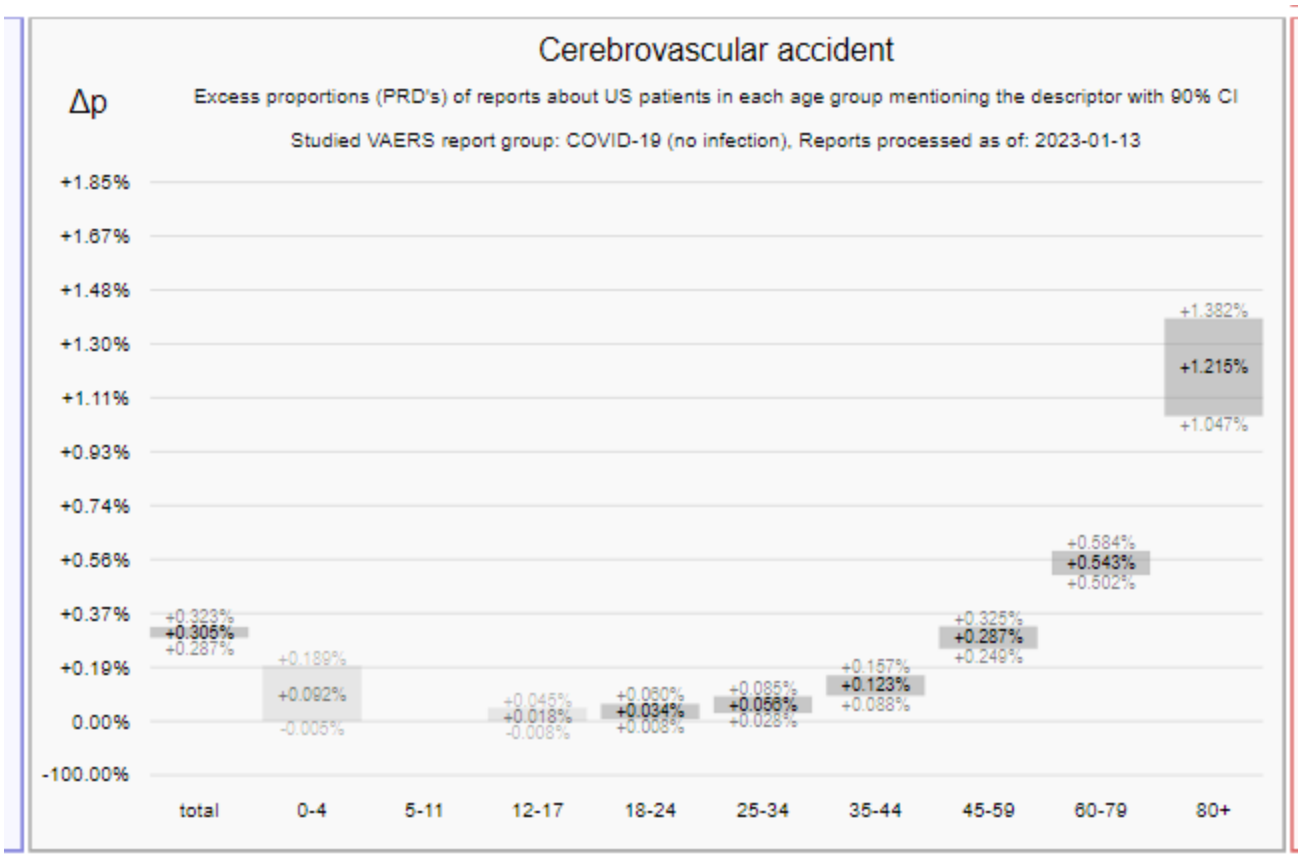


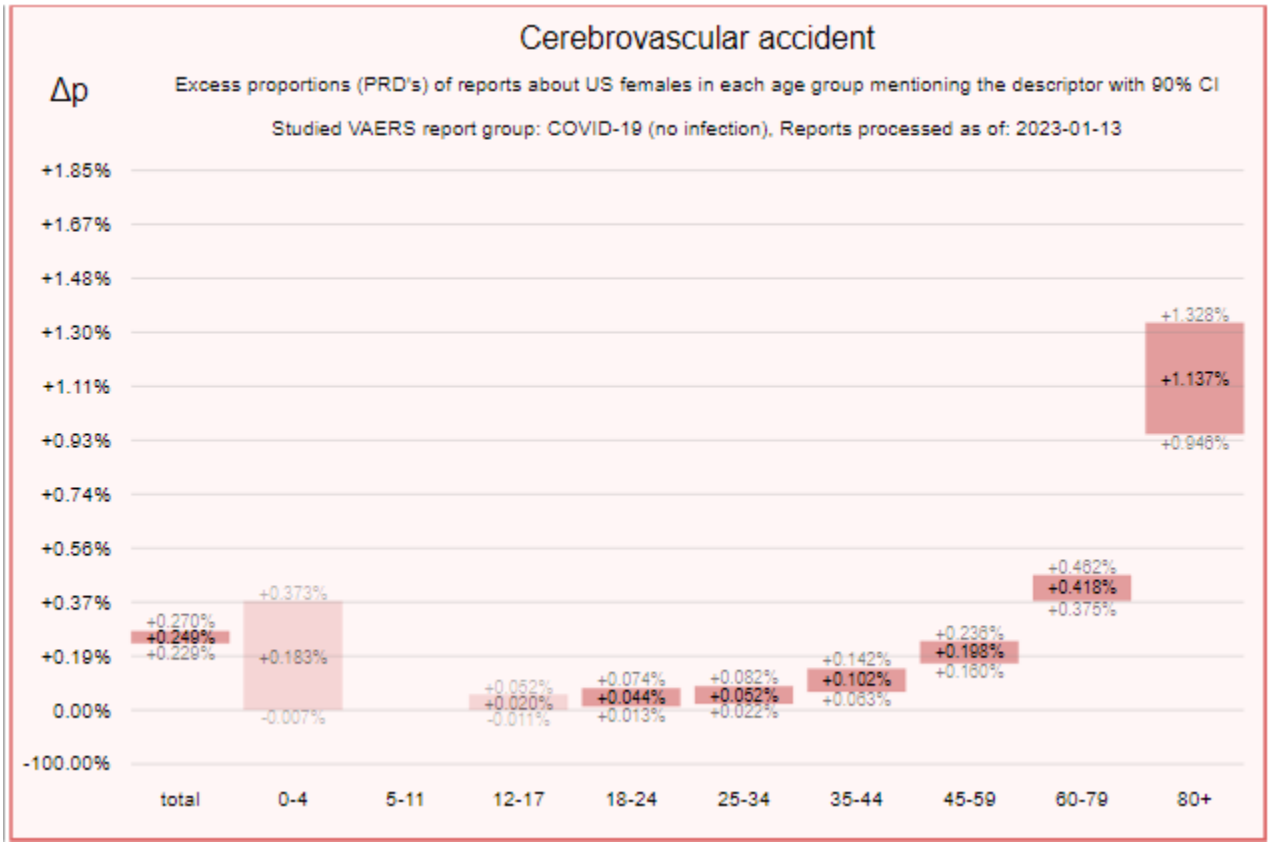

Unresponsive to stimuli
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.77%
+2.49%
+2.22%
+1.94%
+1.66%
+1.38%
+1.11%
+0.83%
+0.55%
+0.28%
0.00%
-100.00%
+0.476%
+0.452%
+0.427%
+0.285%
+0.024%
-0.237%
+0.385%
+0.248%
+0.112%
+1.199%
+1.046%
+0.893%
+1.570%
+1.430%
+1.290%
+0.796%
+0.710%
+0.625%
+0.385%
+0.325%
+0.265%
+0.218%
+0.184%
+0.149%
+0.229%
+0.200%
+0.171%
+0.828%
+0.688%
+0.548%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Unresponsive to stimuli
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.77%
+2.49%
+2.22%
+1.94%
+1.66%
+1.38%
+1.11%
+0.83%
+0.55%
+0.28%
0.00%
-100.00%
+0.352%
+0.327%
+0.301%
+0.512%
+0.300%
+0.089%
+1.553%
+1.337%
+1.121%
+1.161%
+1.013%
+0.864%
+0.440%
+0.362%
+0.284%
+0.201%
+0.146%
+0.091%
+0.168%
+0.132%
+0.096%
+0.172%
+0.142%
+0.112%
+0.762%
+0.605%
+0.448%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

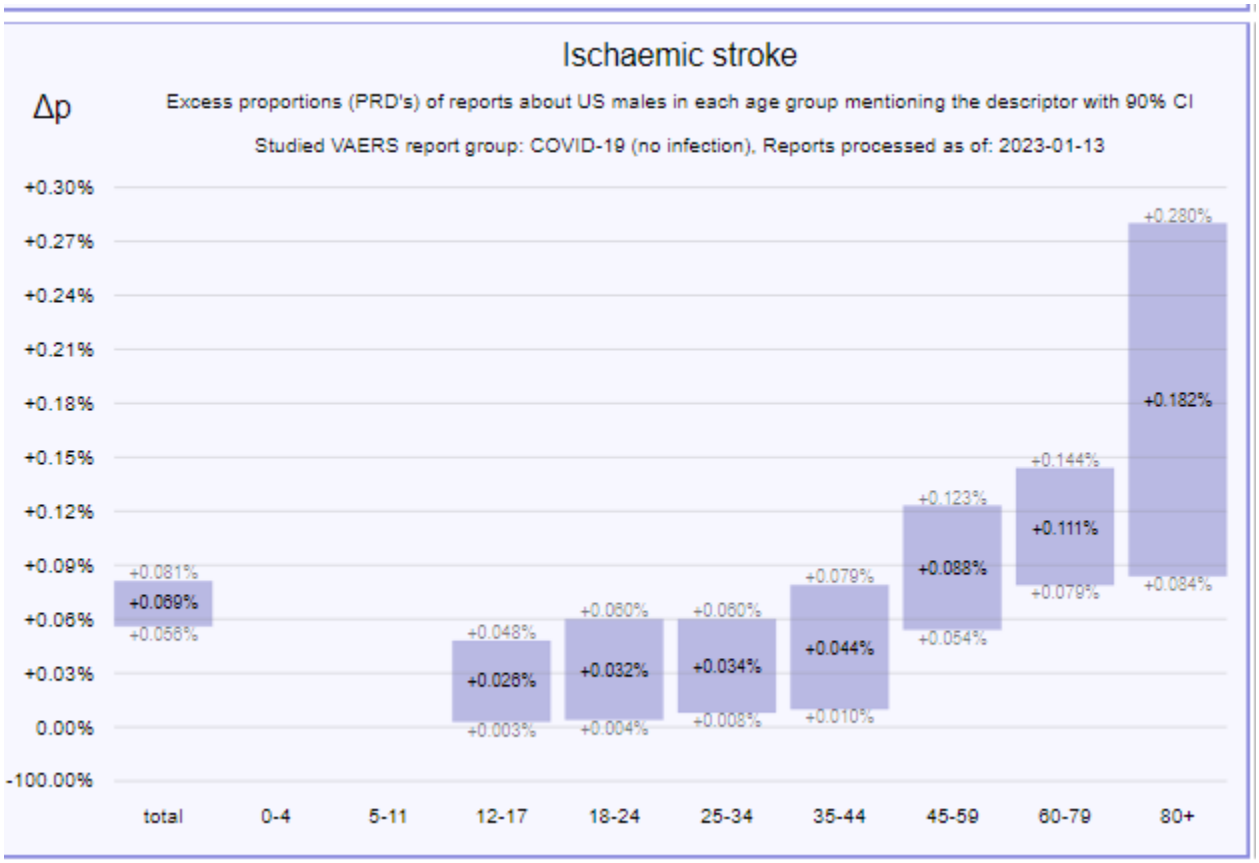
5.2.5.9 Cerebrovascular Accident

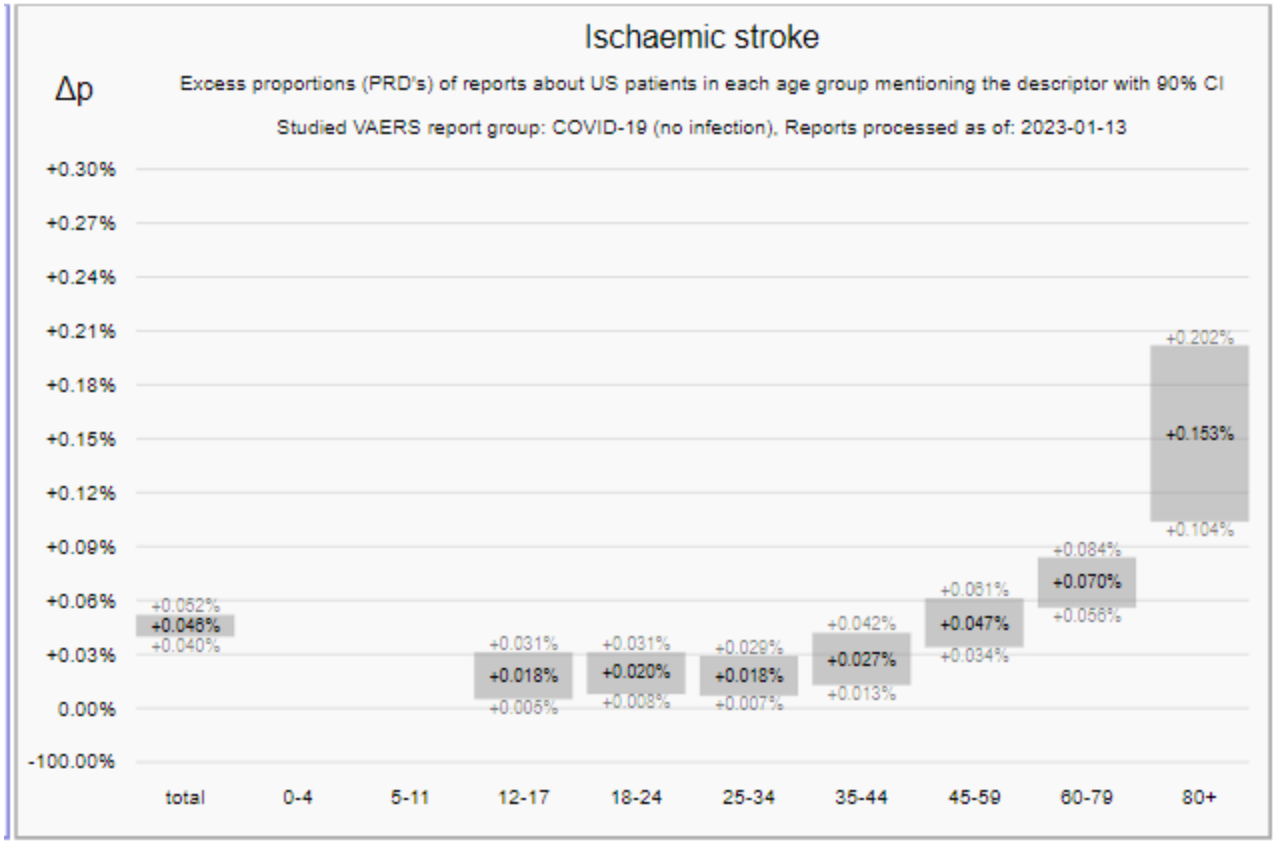


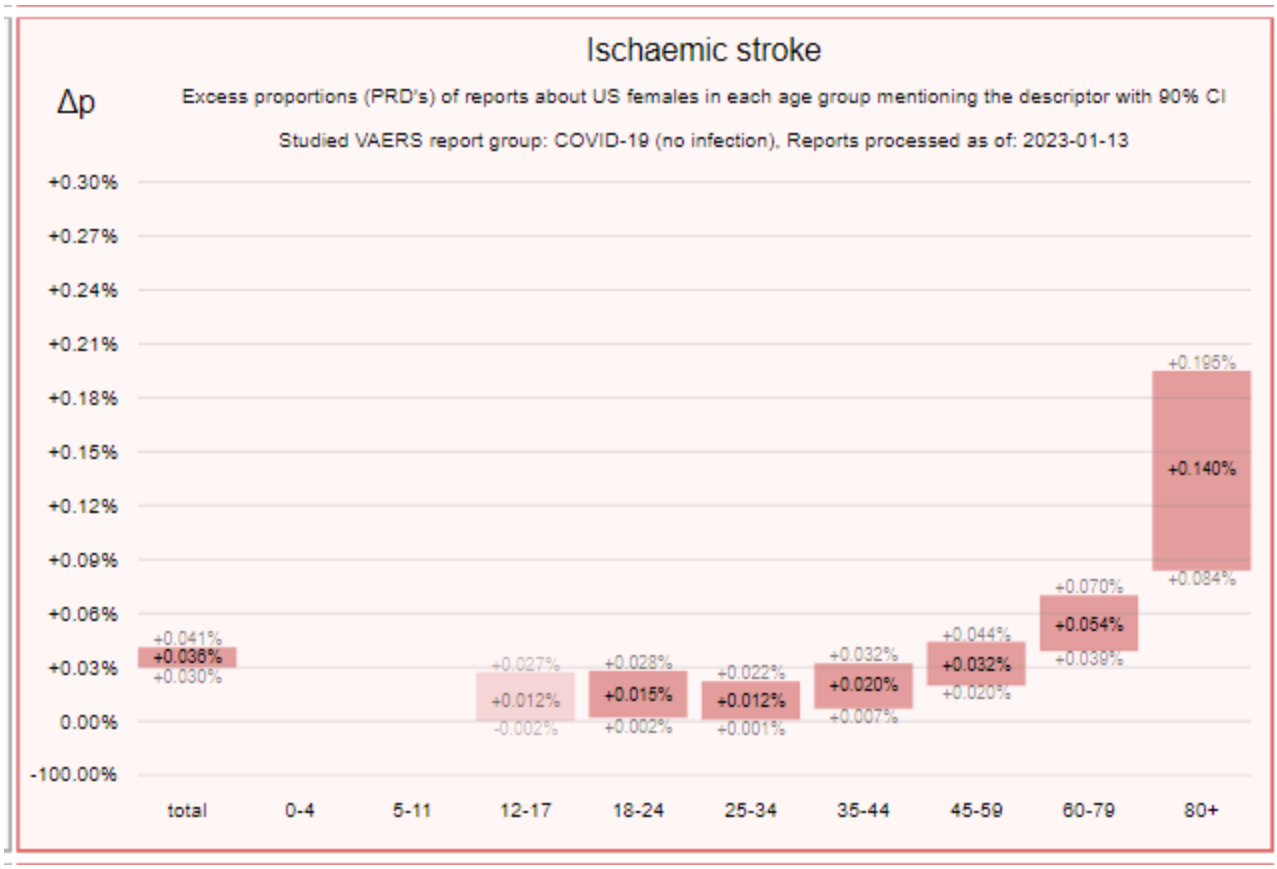

Cerebrovascular accident
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.85%
+1.67%
+1.48%
+1.30%
+1.11%
+0.93%
+0.74%
+0.56%
+0.37%
+0.19%
0.00%
-100.00%
+0.323%
+0.306%
+0.287%
+0.189%
+0.092%
-0.005%
+0.045%
+0.018%
-0.008%
+0.060%
+0.034%
+0.008%
+0.085%
+0.056%
+0.028%
+0.157%
+0.123%
+0.088%
+0.325%
+0.287%
+0.249%
+0.584%
+0.543%
+0.502%
+1.382%
+1.215%
+1.047%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Cerebrovascular accident
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.85%
+1.67%
+1.48%
+1.30%
+1.11%
+0.93%
+0.74%
+0.56%
+0.37%
+0.19%
0.00%
-100.00%
+0.270%
+0.249%
+0.229%
+0.373%
+0.183%
-0.007%
+0.052%
+0.020%
-0.011%
+0.074%
+0.044%
+0.013%
+0.082%
+0.052%
+0.022%
+0.142%
+0.102%
+0.063%
+0.236%
+0.198%
+0.160%
+0.462%
+0.418%
+0.375%
+1.328%
+1.137%
+0.946%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

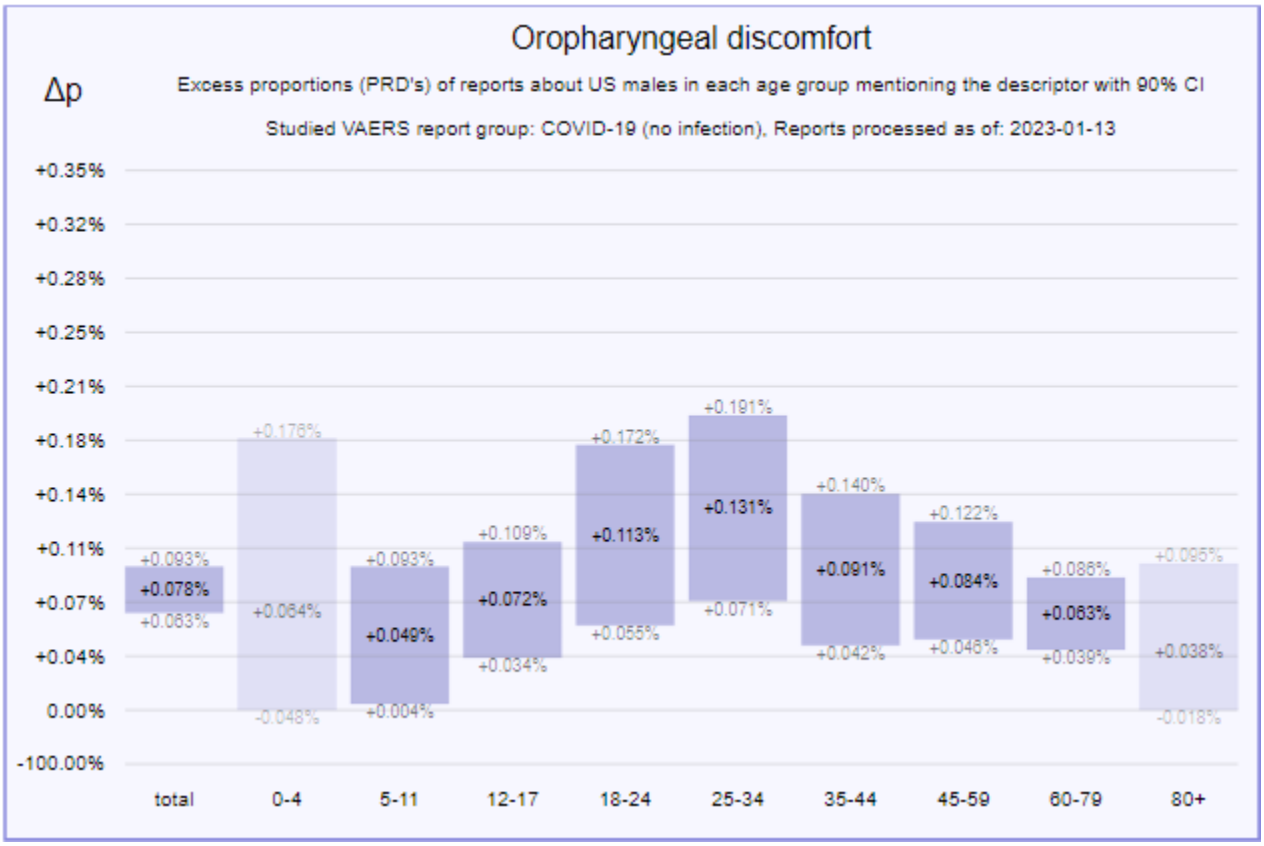
5.2.5.10 Ischemic Stroke

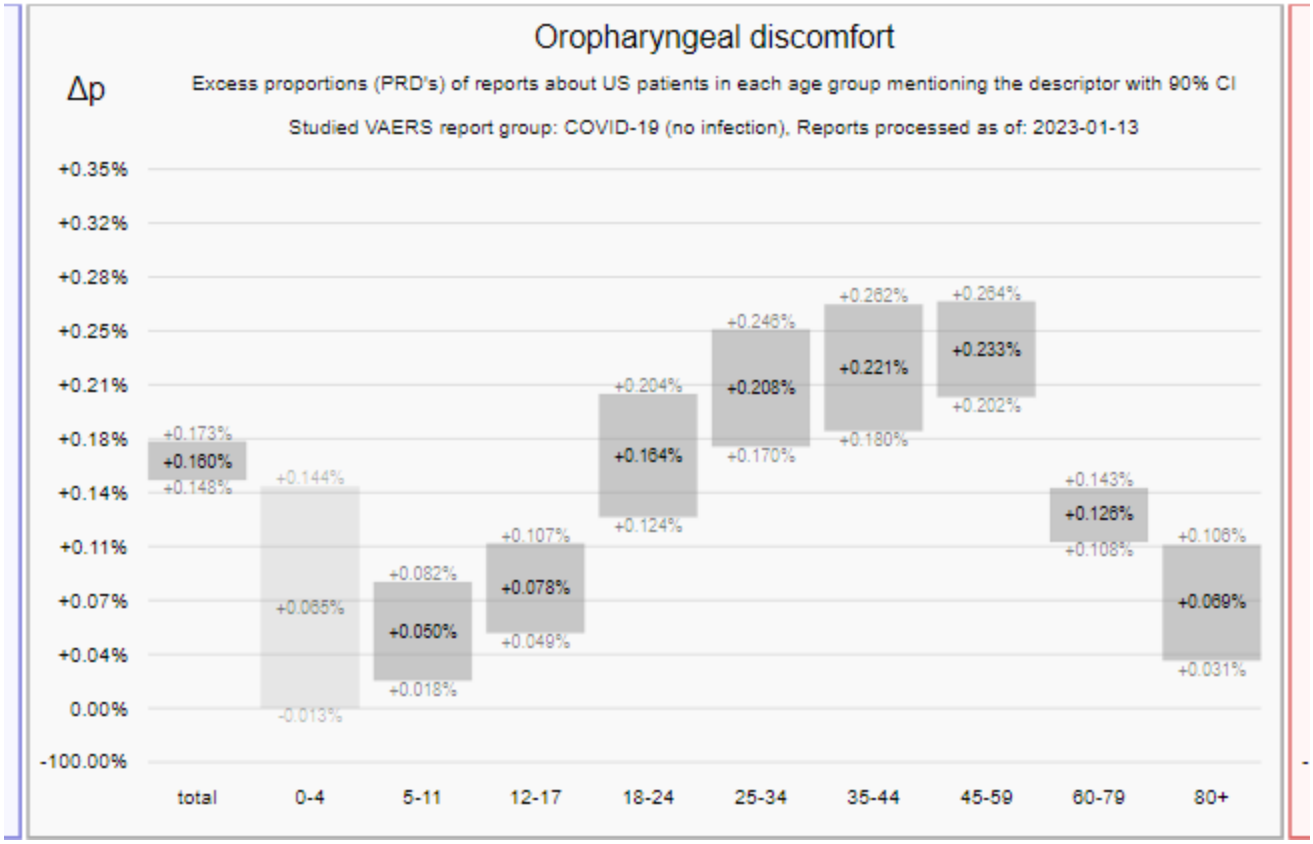


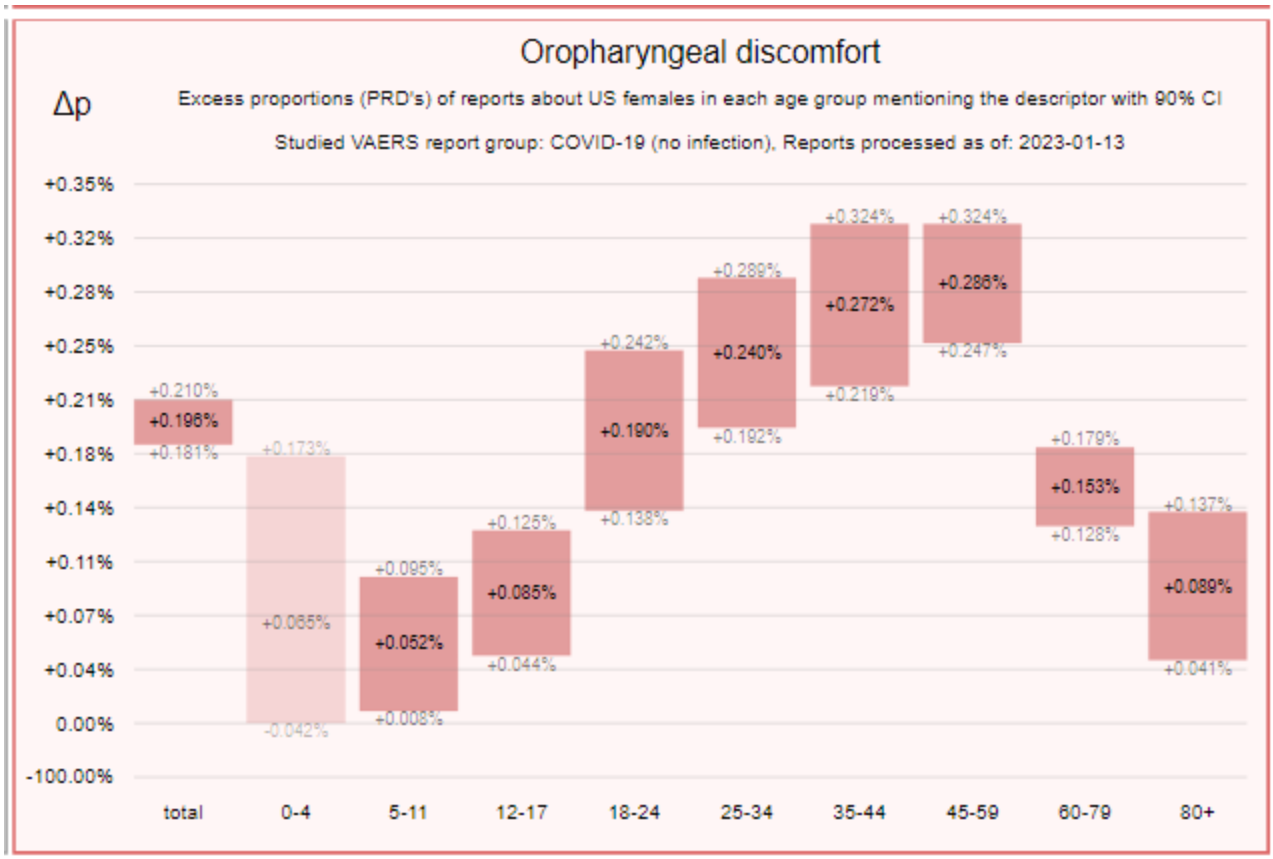

Ischaemic stroke
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.052%
+0.046%
+0.040%
+0.031%
+0.018%
+0.005%
+0.031%
+0.020%
+0.008%
+0.029%
+0.018%
+0.007%
+0.042%
+0.027%
+0.013%
+0.061%
+0.047%
+0.034%
+0.084%
+0.070%
+0.056%
+0.202%
+0.153%
+0.104%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Ischaemic stroke
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.041%
+0.036%
+0.030%
+0.027%
+0.012%
-0.002%
+0.028%
+0.015%
+0.002%
+0.022%
+0.012%
+0.001%
+0.032%
+0.020%
+0.007%
+0.044%
+0.032%
+0.020%
+0.070%
+0.054%
+0.039%
+0.195%
+0.140%
+0.084%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

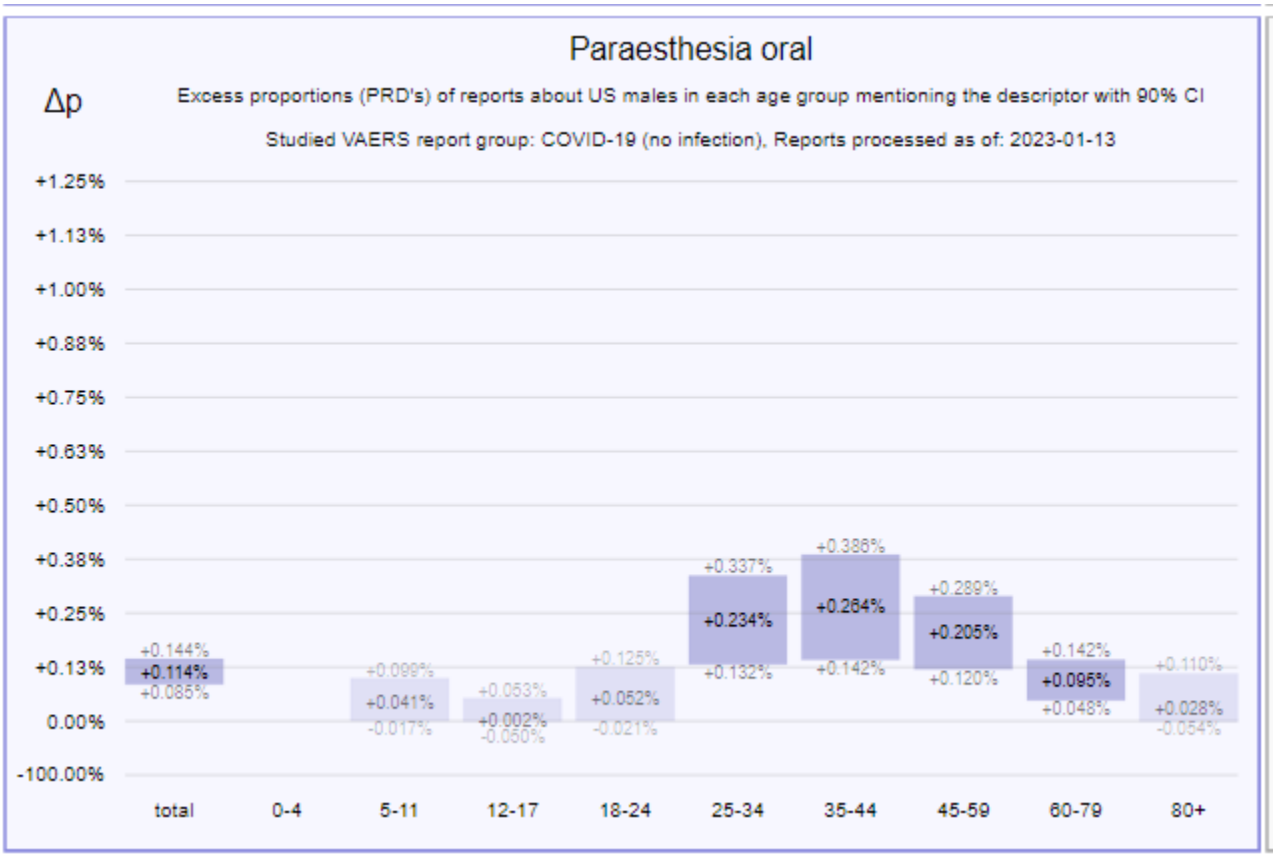
5.2.5.11 Oropharyngeal Discomfort

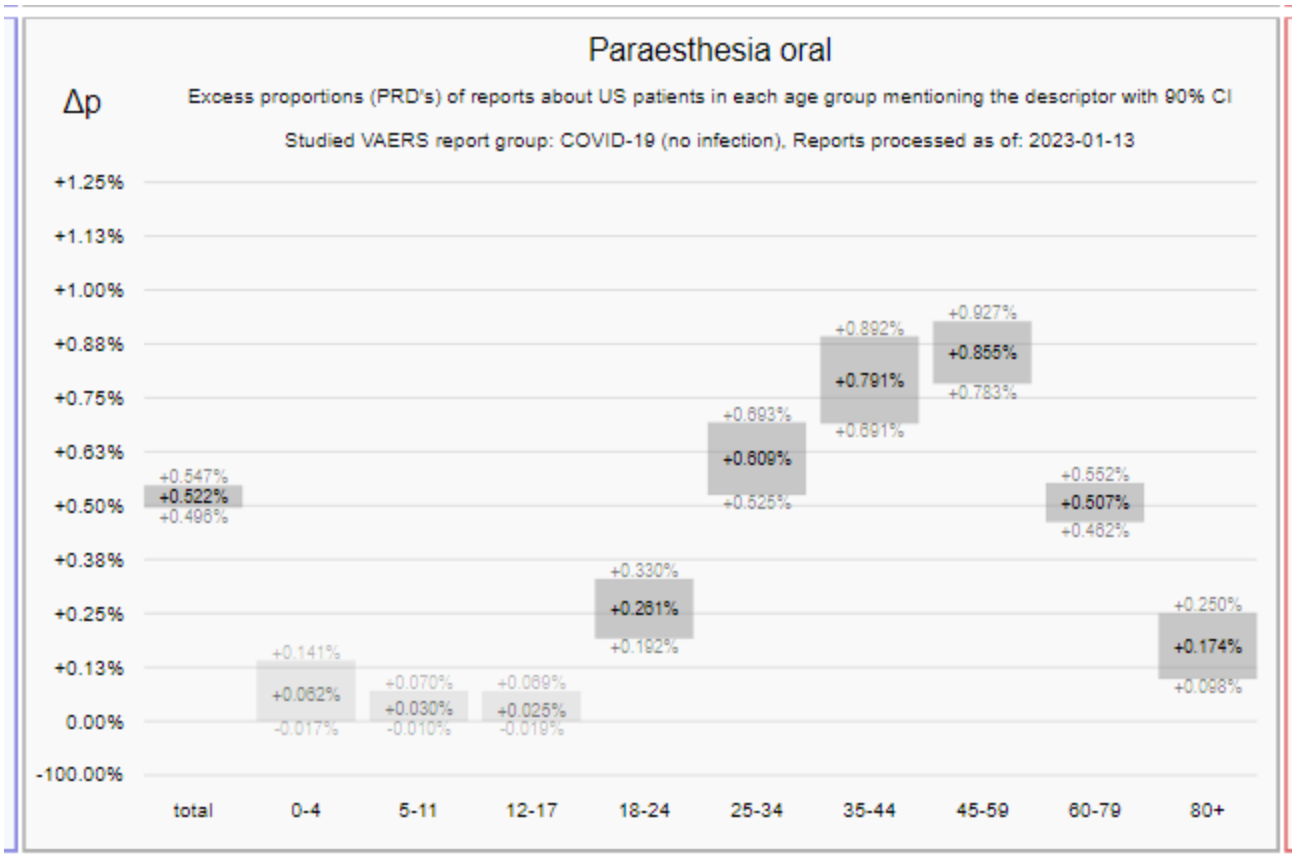


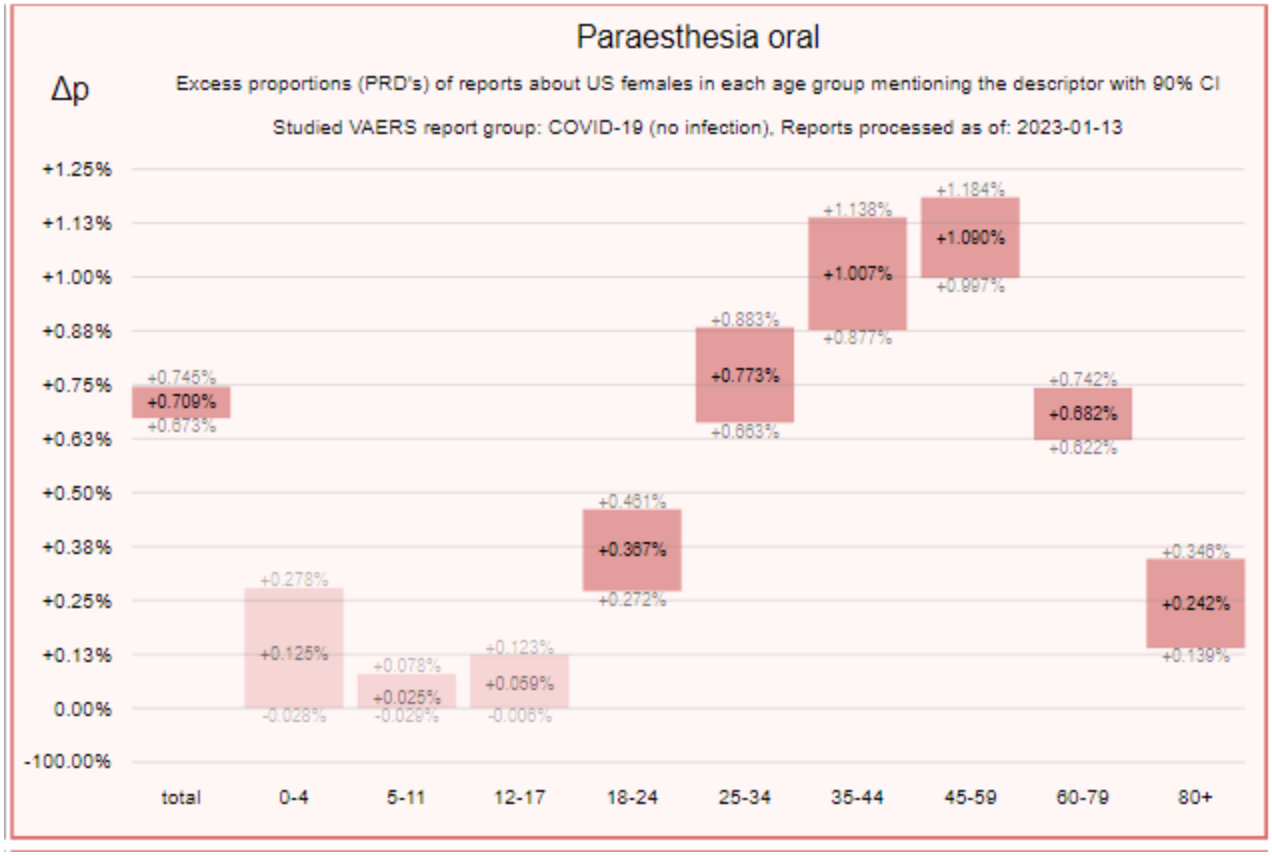

Oropharyngeal discomfort
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.35%
+0.32%
+0.28%
+0.25%
+0.21%
+0.18%
+0.14%
+0.11%
+0.07%
+0.04%
0.00%
-100.00%
+0.173%
+0.160%
+0.148%
+0.144%
+0.065%
-0.013%
+0.082%
+0.050%
+0.018%
+0.107%
+0.078%
+0.049%
+0.204%
+0.164%
+0.124%
+0.246%
+0.208%
+0.170%
+0.262%
+0.221%
+0.180%
+0.264%
+0.233%
+0.202%
+0.143%
+0.126%
+0.108%
+0.106%
+0.069%
+0.031%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Oropharyngeal discomfort
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.35%
+0.32%
+0.28%
+0.25%
+0.21%
+0.18%
+0.14%
+0.11%
+0.07%
+0.04%
0.00%
-100.00%
+0.210%
+0.196%
+0.181%
+0.173%
+0.065%
-0.042%
+0.095%
+0.052%
+0.008%
+0.125%
+0.085%
+0.044%
+0.242%
+0.190%
+0.138%
+0.289%
+0.240%
+0.192%
+0.324%
+0.272%
+0.219%
+0.324%
+0.286%
+0.247%
+0.179%
+0.153%
+0.128%
+0.137%
+0.089%
+0.041%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

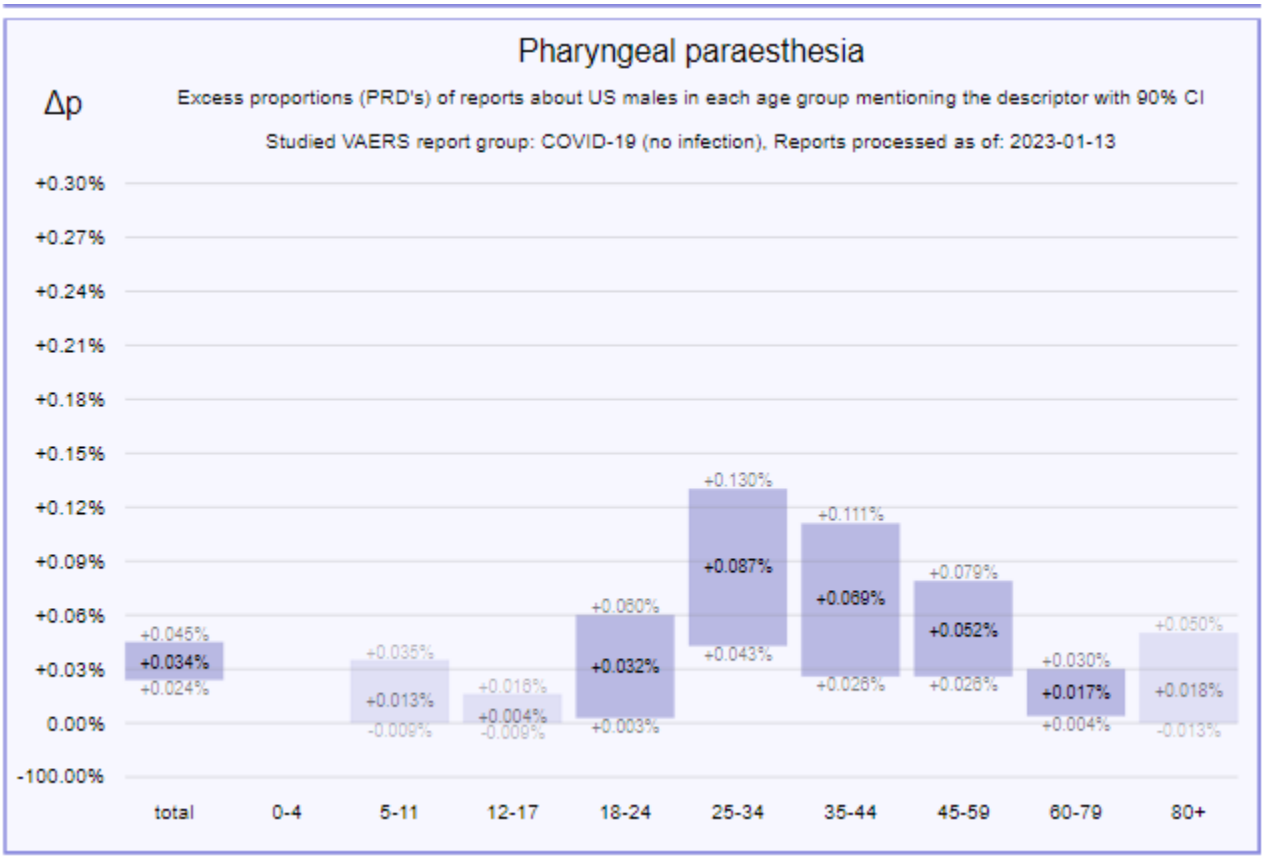
5.2.5.12 Oral Paraesthesia

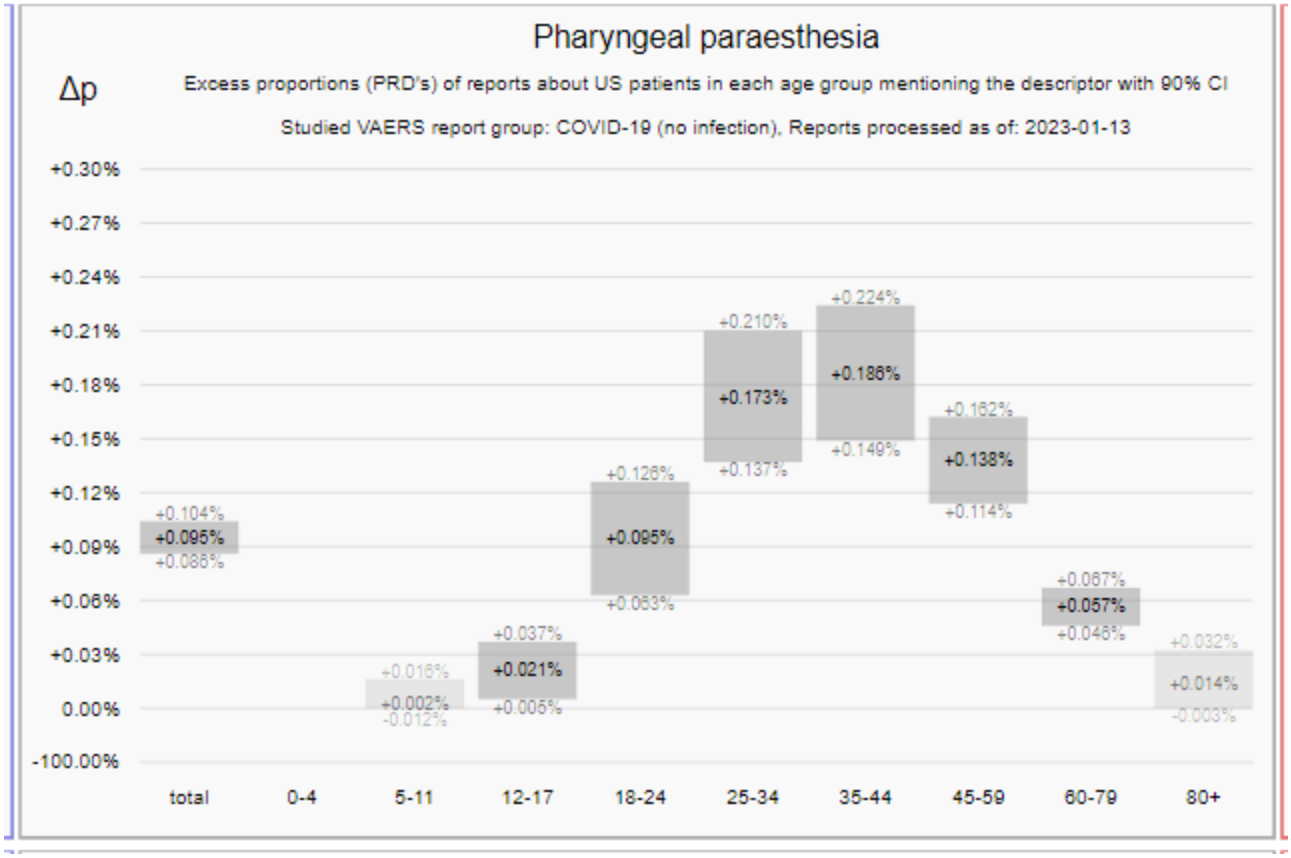


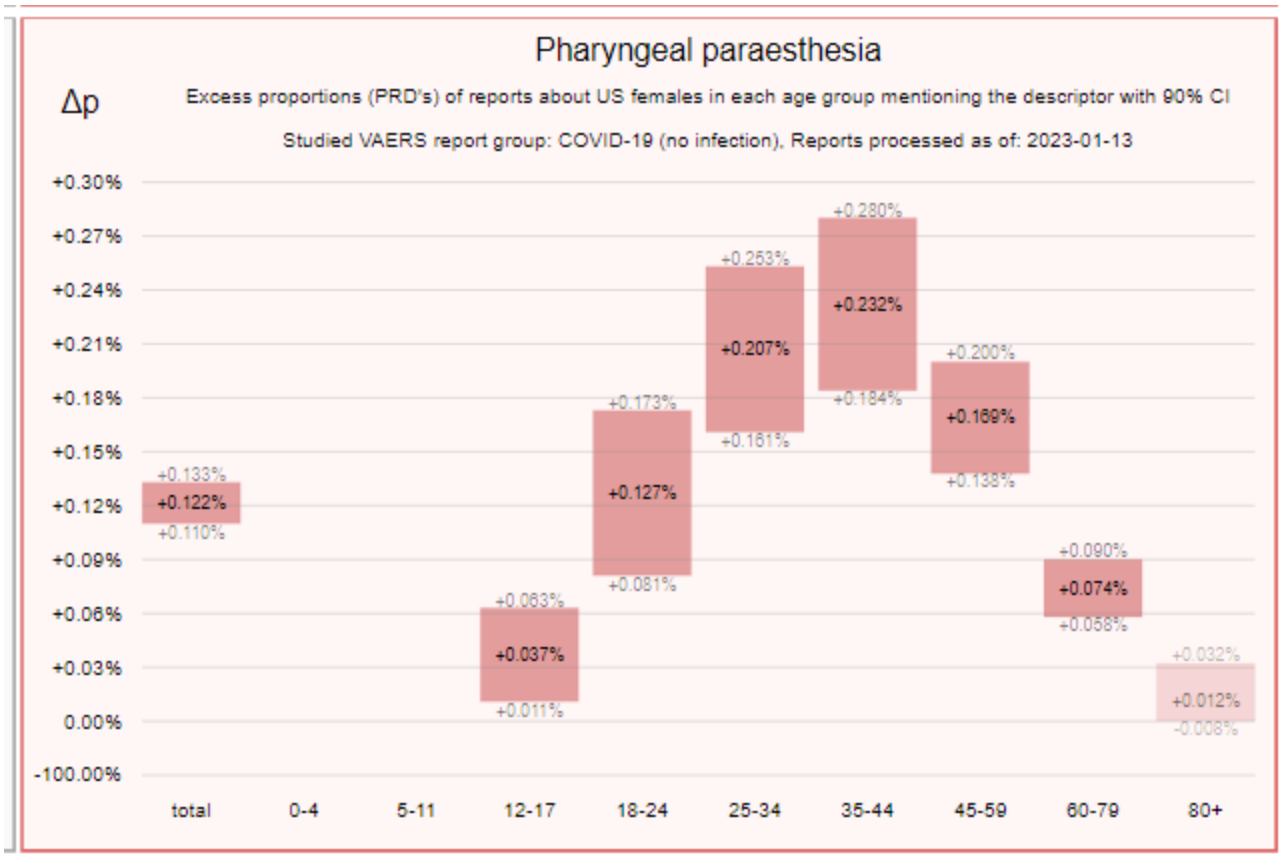

Paraesthesia oral
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.25%
+1.13%
+1.00%
+0.88%
+0.75%
+0.63%
+0.50%
+0.38%
+0.25%
+0.13%
0.00%
-100.00%
+0.547%
+0.522%
+0.496%
+0.141%
+0.062%
-0.017%
+0.070%
+0.030%
-0.010%
+0.069%
+0.025%
-0.019%
+0.330%
+0.261%
+0.192%
+0.693%
+0.609%
+0.525%
+0.892%
+0.791%
+0.691%
+0.927%
+0.855%
+0.783%
+0.552%
+0.507%
+0.462%
+0.250%
+0.174%
+0.098%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Paraesthesia oral
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.25%
+1.13%
+1.00%
+0.88%
+0.75%
+0.63%
+0.50%
+0.38%
+0.25%
+0.13%
0.00%
-100.00%
+0.745%
+0.709%
+0.673%
+0.278%
+0.125%
-0.028%
+0.078%
+0.025%
-0.029%
+0.123%
+0.059%
-0.006%
+0.461%
+0.367%
+0.272%
+0.883%
+0.773%
+0.663%
+1.138%
+1.007%
+0.877%
+1.184%
+1.090%
+0.997%
+0.742%
+0.682%
+0.622%
+0.346%
+0.242%
+0.139%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

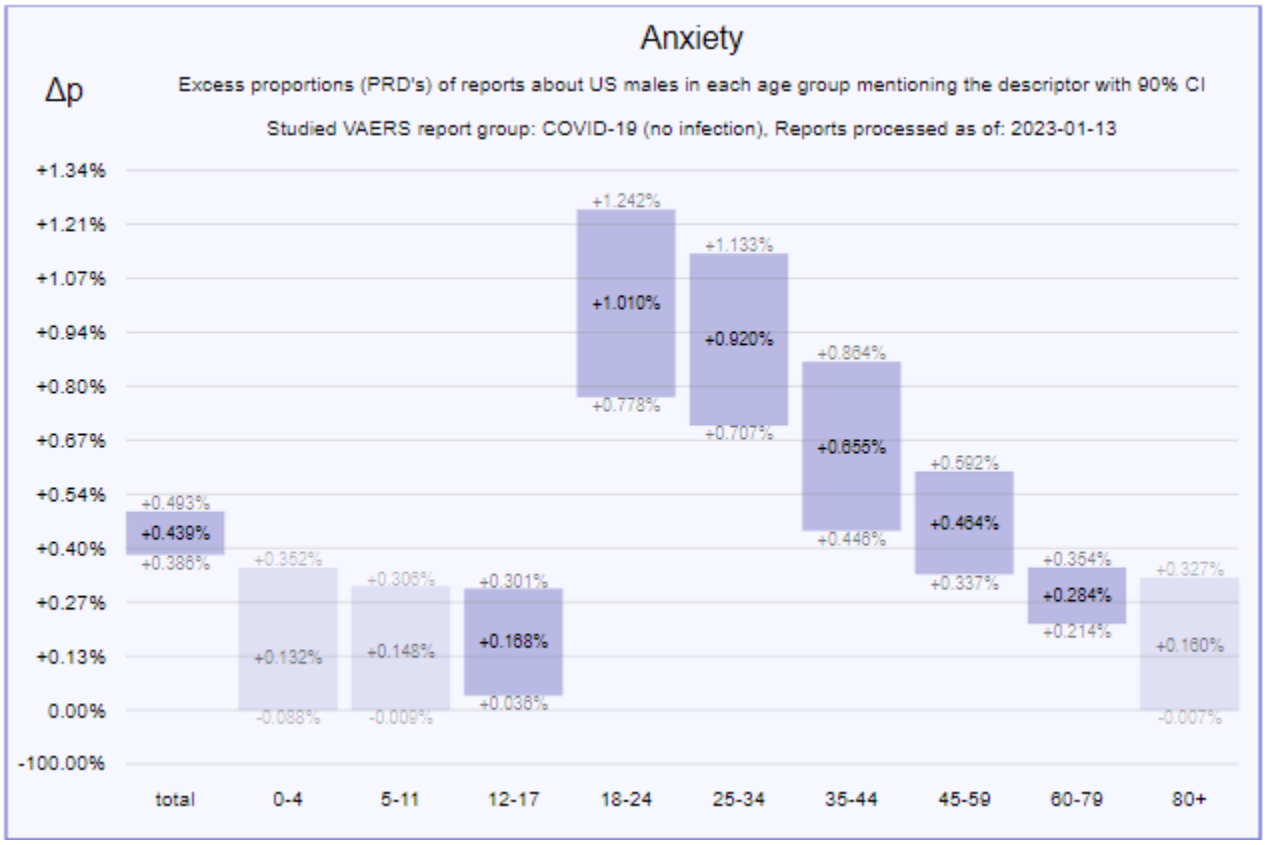
5.2.5.13 Pharyngeal Paraesthesia

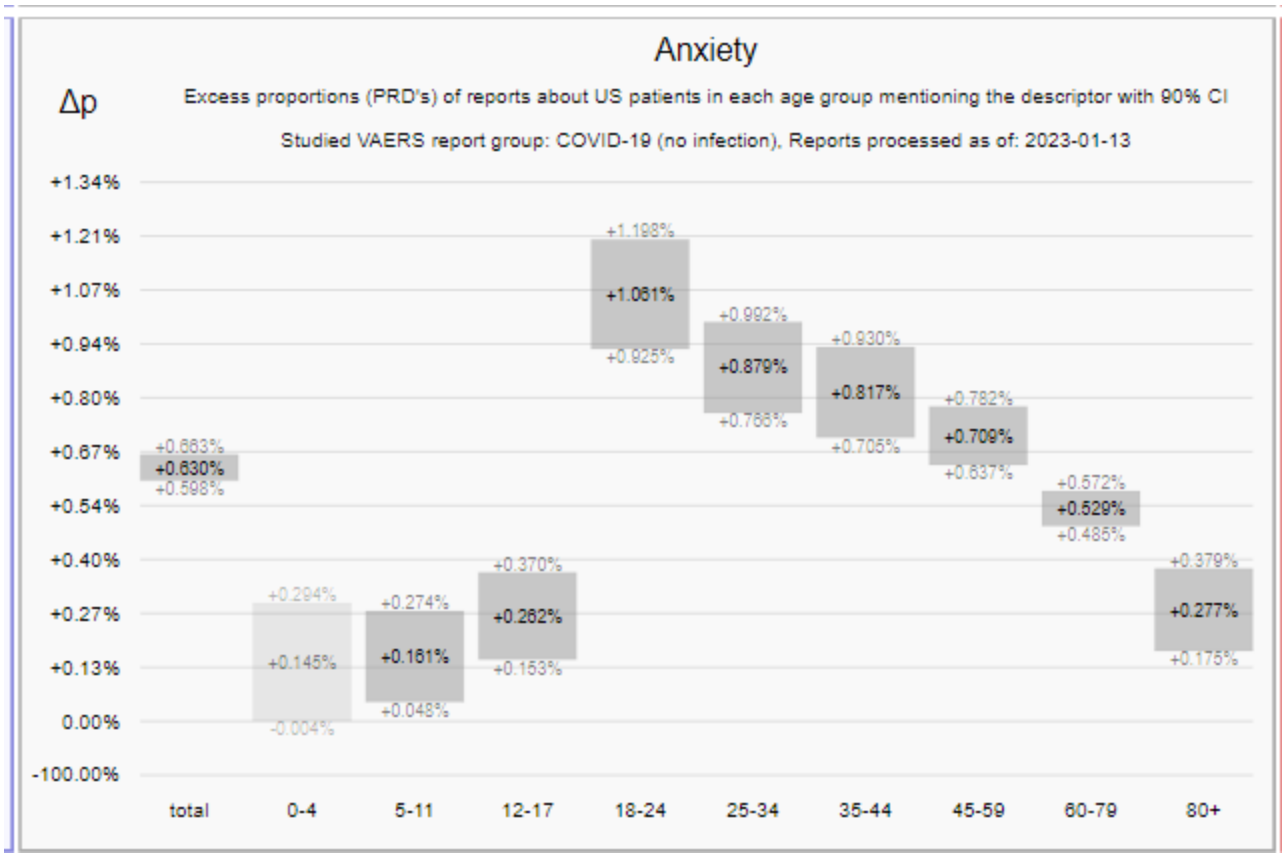


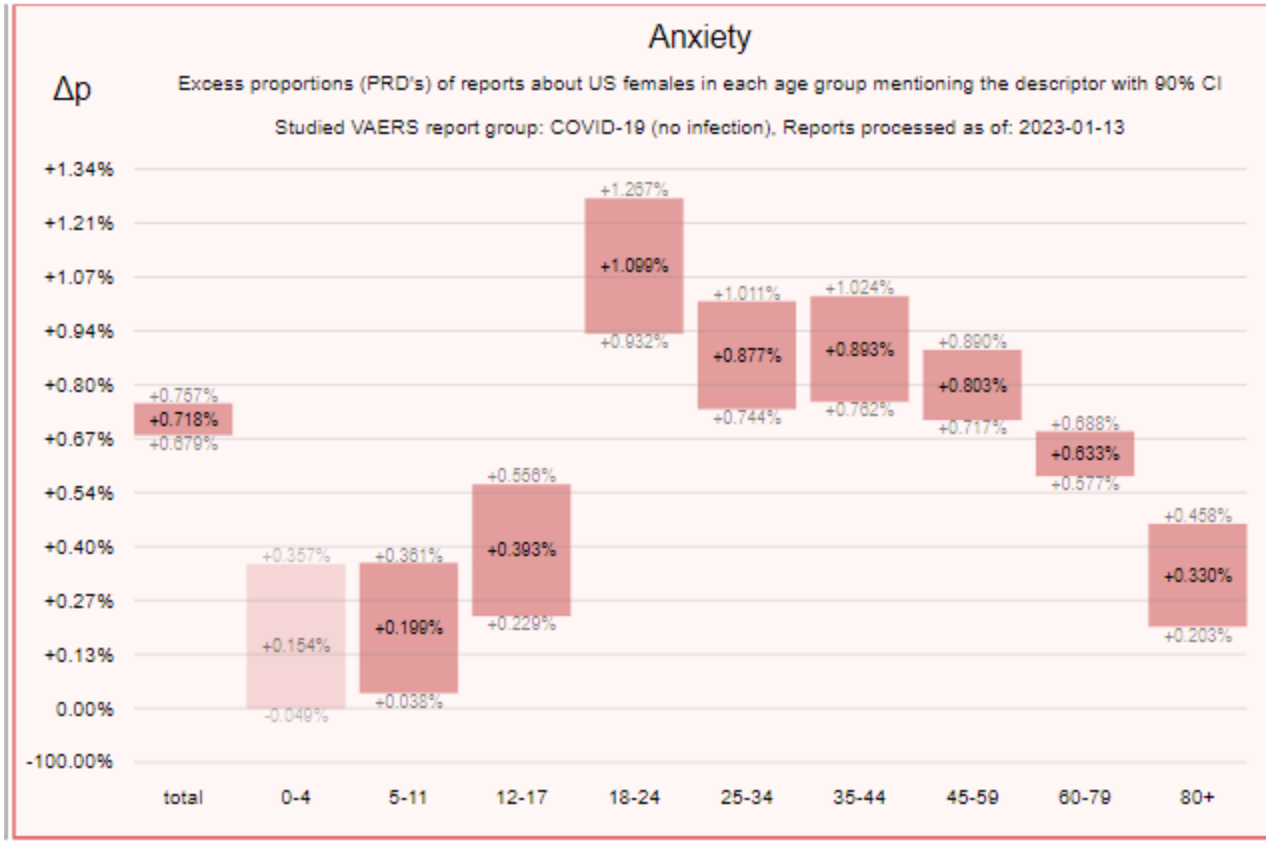

Pharyngeal paraesthesia
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.104%
+0.095%
+0.086%
+0.016%
+0.002%
-0.012%
+0.037%
+0.021%
+0.005%
+0.126%
+0.095%
+0.063%
+0.210%
+0.173%
+0.137%
+0.224%
+0.186%
+0.149%
+0.162%
+0.138%
+0.114%
+0.067%
+0.057%
+0.046%
+0.032%
+0.014%
-0.003%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Pharyngeal paraesthesia
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.30%
+0.27%
+0.24%
+0.21%
+0.18%
+0.15%
+0.12%
+0.09%
+0.06%
+0.03%
0.00%
-100.00%
+0.133%
+0.122%
+0.110%
+0.063%
+0.037%
+0.011%
+0.173%
+0.127%
+0.081%
+0.253%
+0.207%
+0.161%
+0.280%
+0.232%
+0.184%
+0.200%
+0.169%
+0.138%
+0.090%
+0.074%
+0.058%
+0.032%
+0.012%
-0.008%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

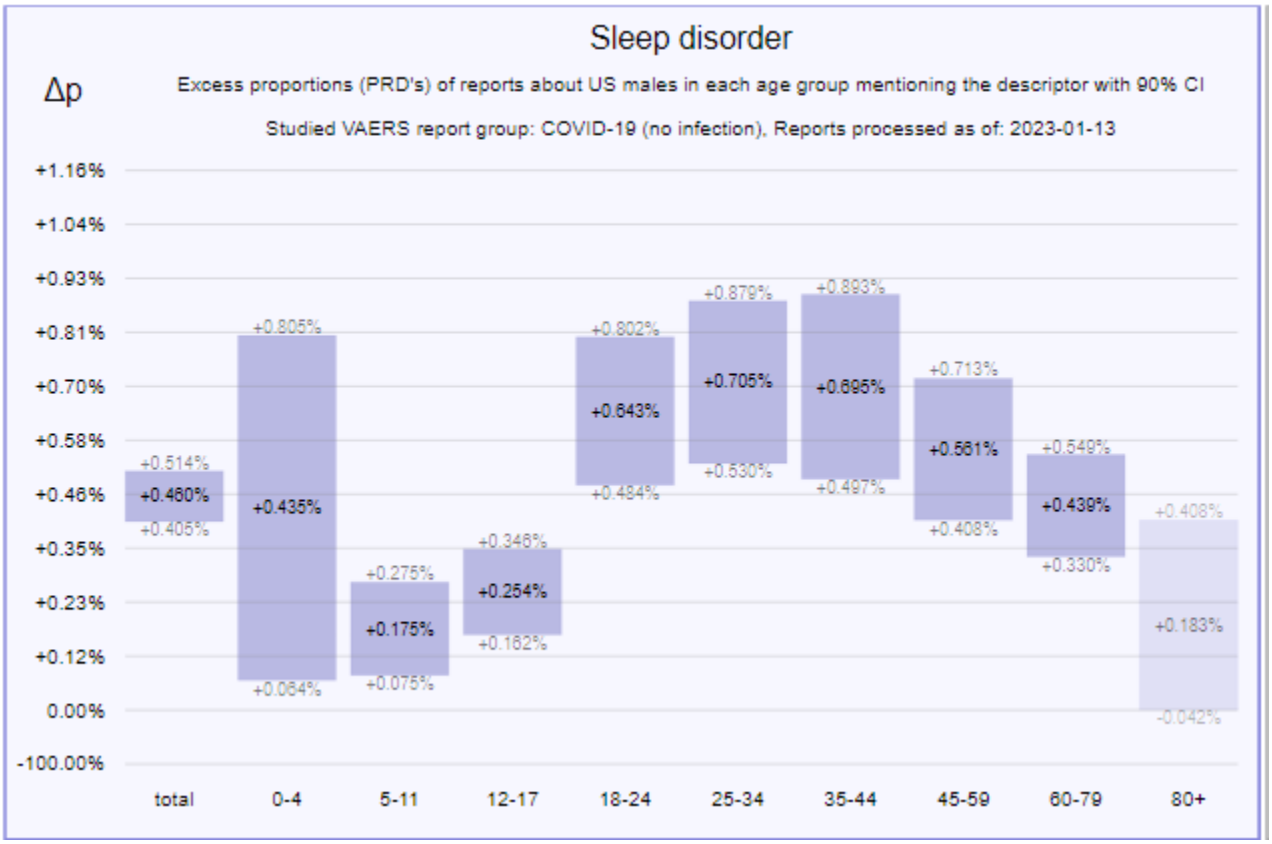
5.2.5.14 Anxiety

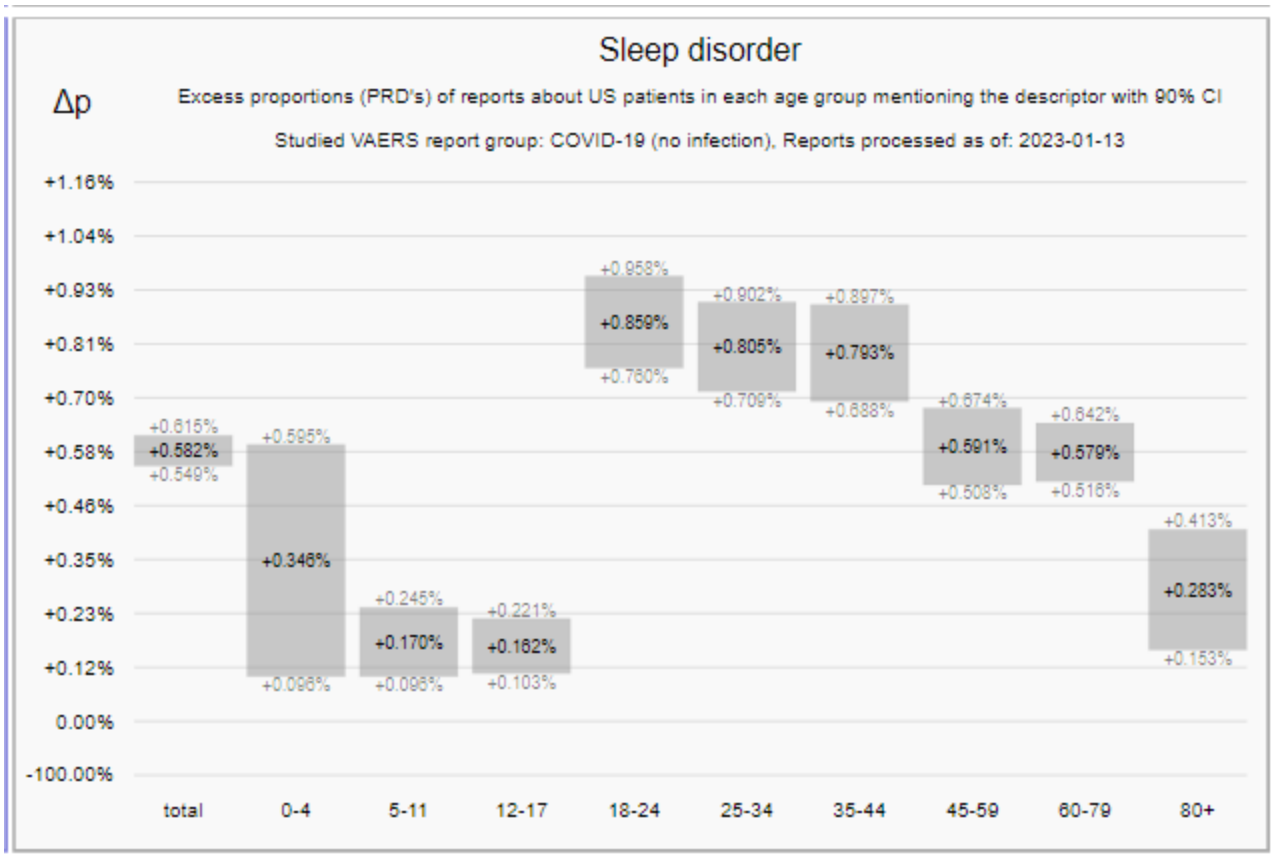


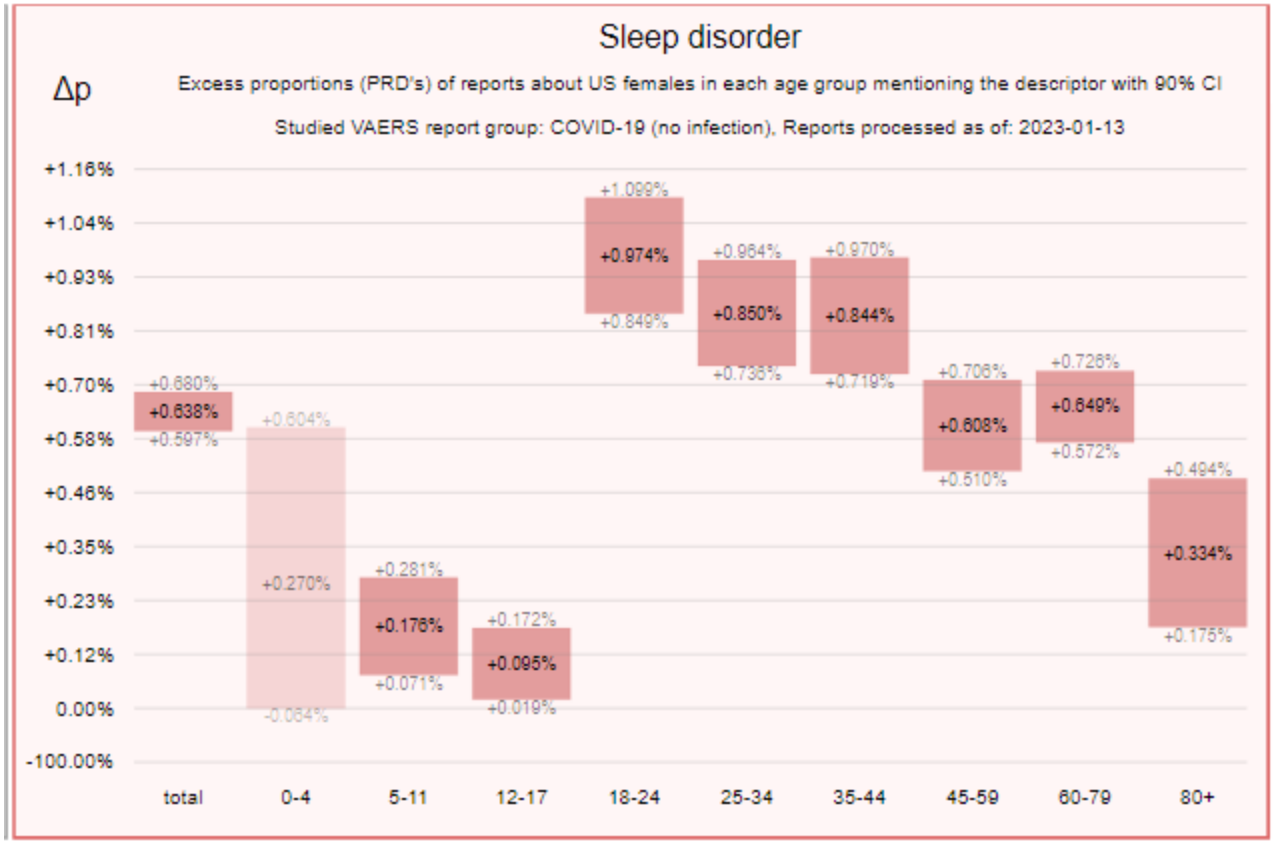

Anxiety
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.34%
+1.21%
+1.07%
+0.94%
+0.80%
+0.67%
+0.54%
+0.40%
+0.27%
+0.13%
0.00%
-100.00%
+0.663%
+0.630%
+0.598%
+0.294%
+0.145%
-0.004%
+0.274%
+0.161%
+0.048%
+0.370%
+0.262%
+0.153%
+1.198%
+1.061%
+0.925%
+0.992%
+0.879%
+0.766%
+0.930%
+0.817%
+0.705%
+0.782%
+0.709%
+0.637%
+0.572%
+0.529%
+0.485%
+0.379%
+0.277%
+0.175%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Anxiety
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.34%
+1.21%
+1.07%
+0.94%
+0.80%
+0.67%
+0.54%
+0.40%
+0.27%
+0.13%
0.00%
-100.00%
+0.757%
+0.718%
+0.679%
+0.357%
+0.154%
-0.049%
+0.361%
+0.199%
+0.038%
+0.556%
+0.393%
+0.229%
+1.267%
+1.099%
+0.932%
+1.011%
+0.877%
+0.744%
+1.024%
+0.893%
+0.762%
+0.890%
+0.803%
+0.717%
+0.688%
+0.633%
+0.577%
+0.458%
+0.330%
+0.203%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

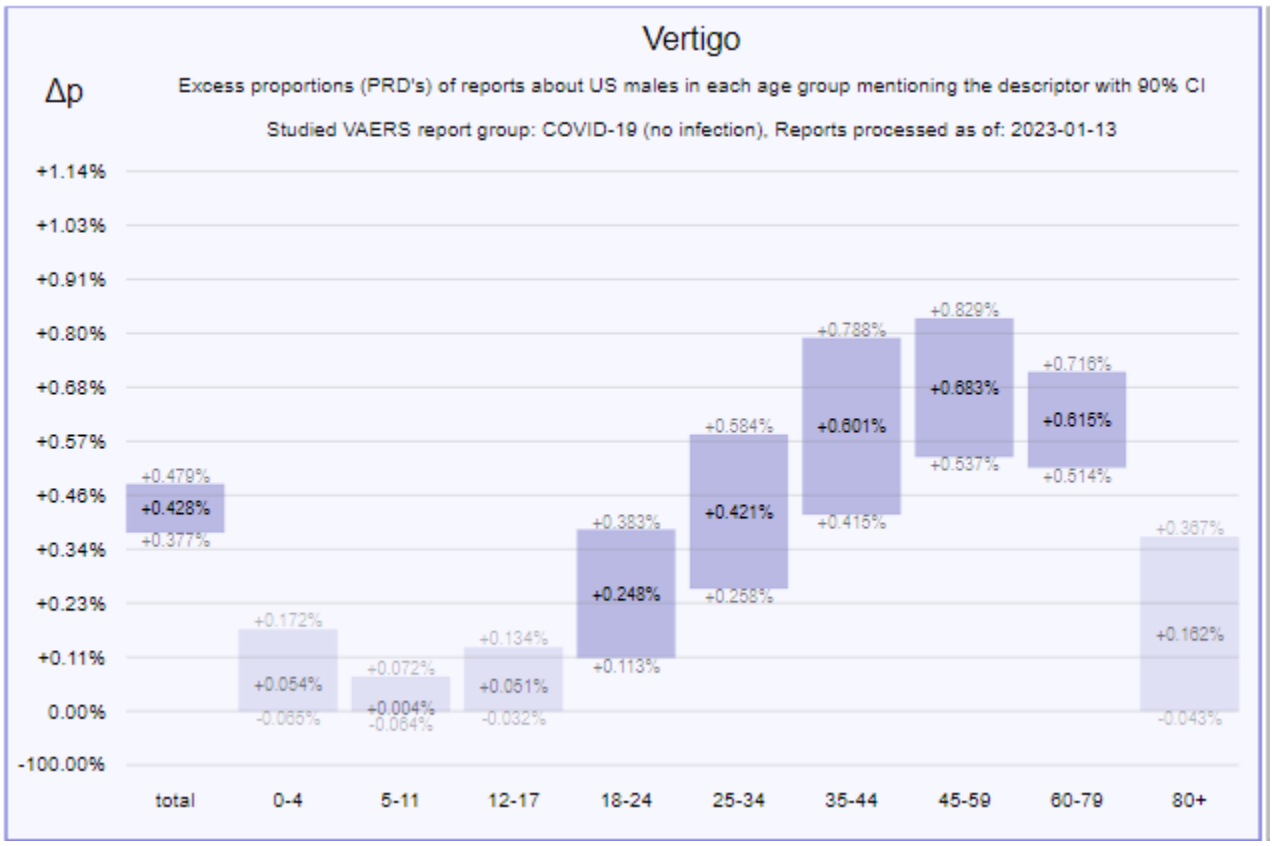
5.2.5.15 Sleep Disorder

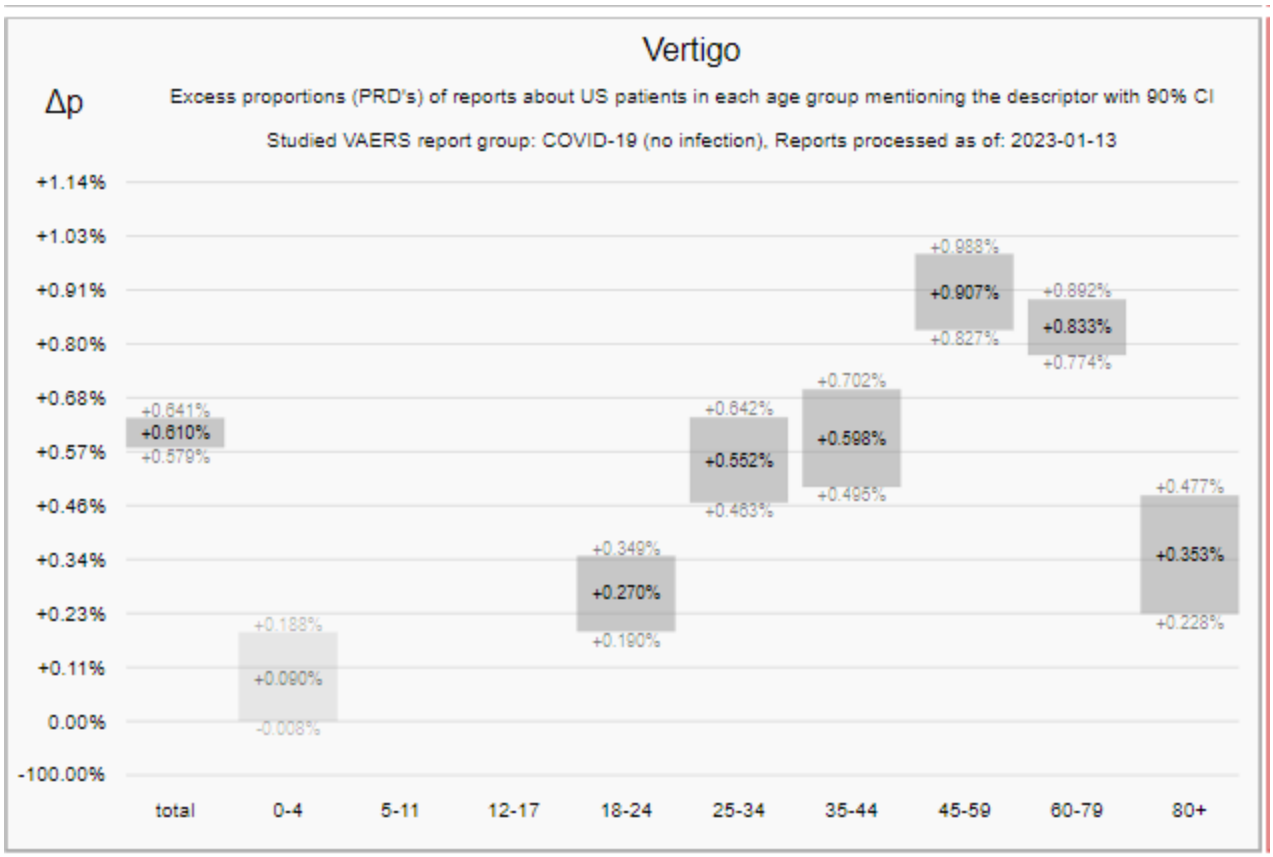


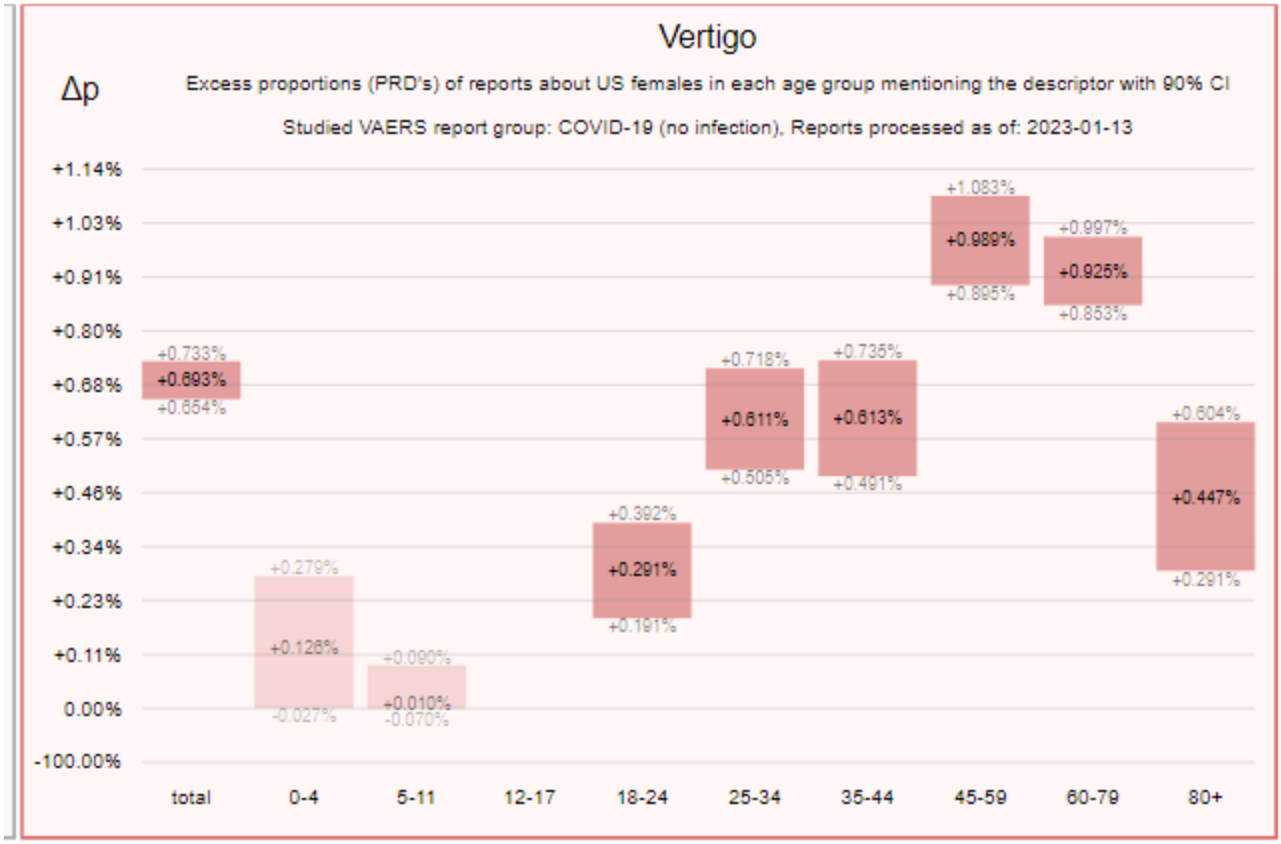

Sleep disorder
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.16%
+1.04%
+0.93%
+0.81%
+0.70%
+0.58%
+0.46%
+0.35%
+0.23%
+0.12%
0.00%
-100.00%
+0.615%
+0.582%
+0.549%
+0.595%
+0.346%
+0.096%
+0.245%
+0.170%
+0.096%
+0.221%
+0.162%
+0.103%
+0.958%
+0.859%
+0.760%
+0.902%
+0.805%
+0.709%
+0.897%
+0.793%
+0.688%
+0.674%
+0.591%
+0.508%
+0.642%
+0.579%
+0.516%
+0.413%
+0.283%
+0.153%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Sleep disorder
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.16%
+1.04%
+0.93%
+0.81%
+0.70%
+0.58%
+0.46%
+0.35%
+0.23%
+0.12%
0.00%
-100.00%
+0.680%
+0.638%
+0.597%
+0.604%
+0.270%
-0.064%
+0.281%
+0.176%
+0.071%
+0.172%
+0.095%
+0.019%
+1.099%
+0.974%
+0.849%
+0.964%
+0.850%
+0.736%
+0.970%
+0.844%
+0.719%
+0.706%
+0.608%
+0.510%
+0.726%
+0.649%
+0.572%
+0.494%
+0.334%
+0.175%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

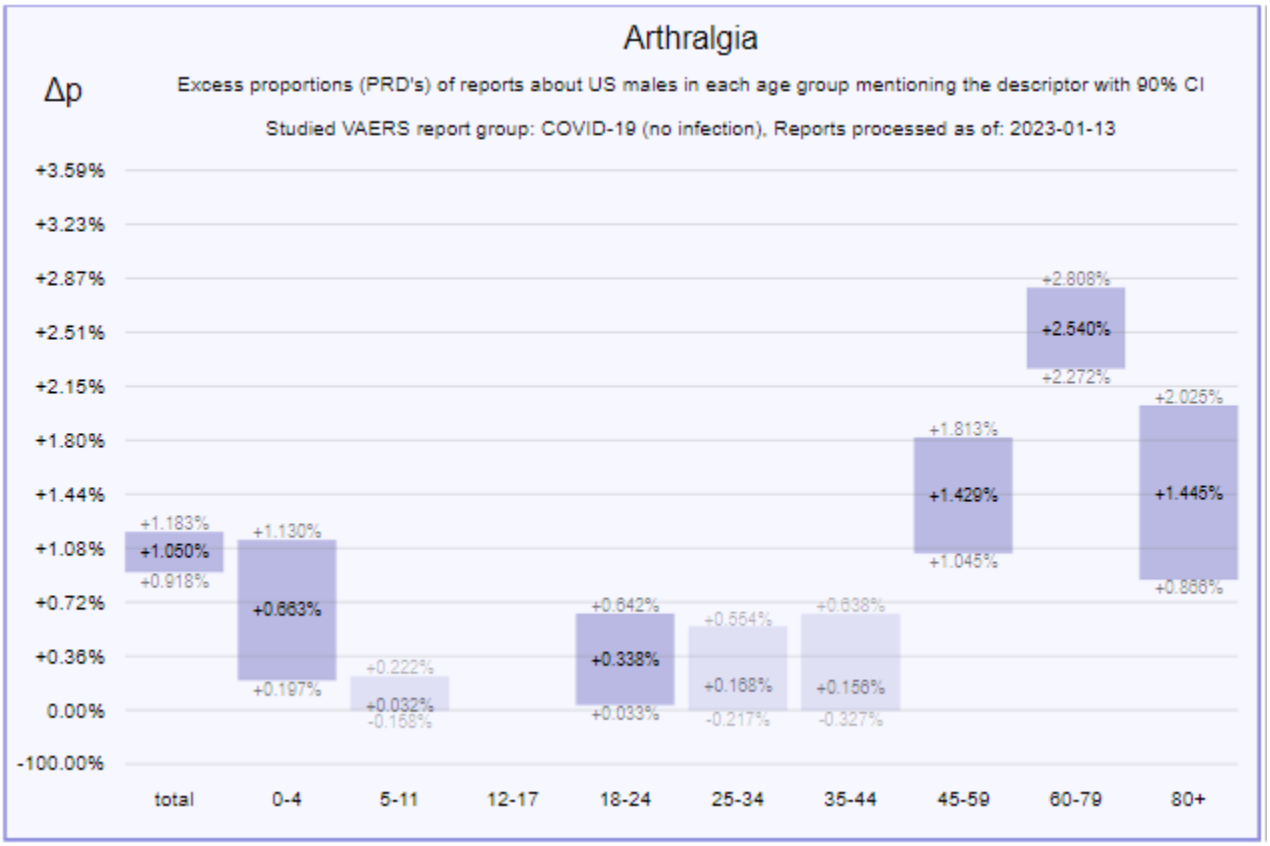
5.2.5.16 Vertigo

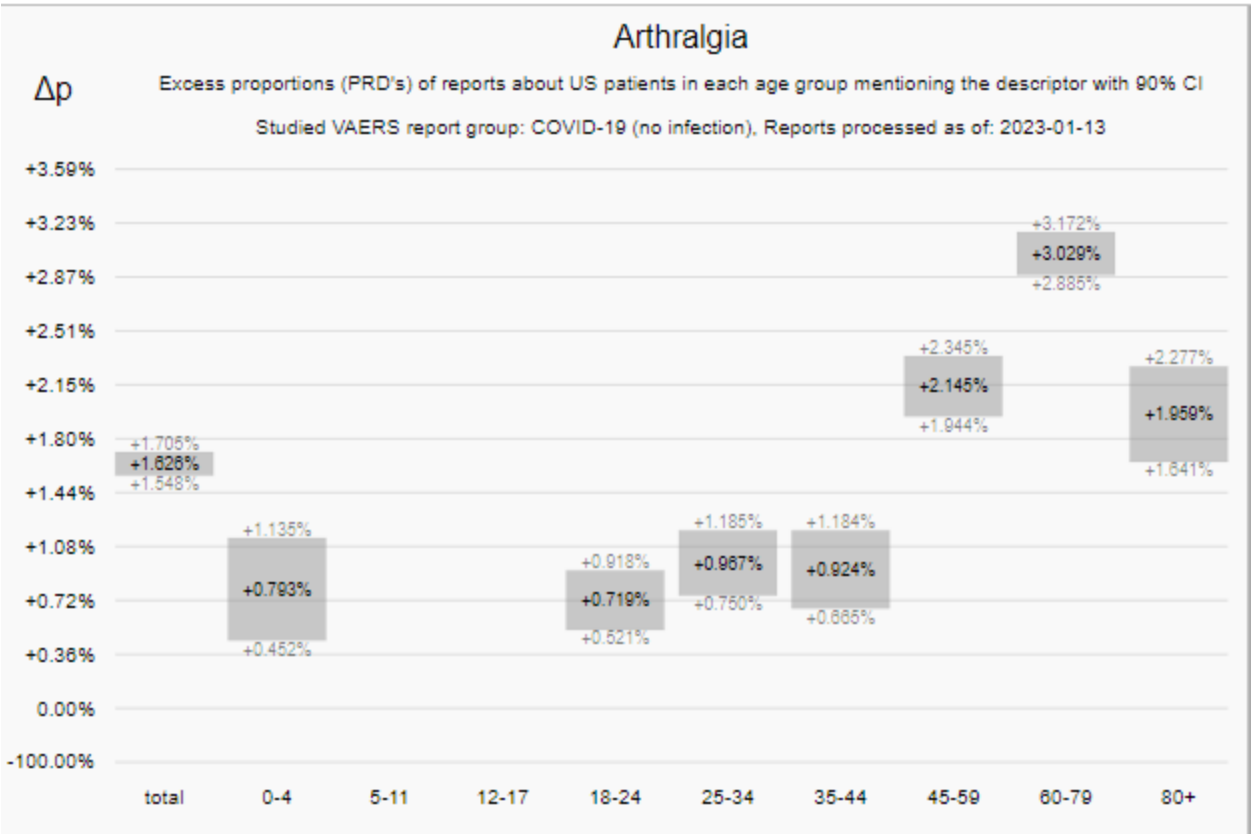


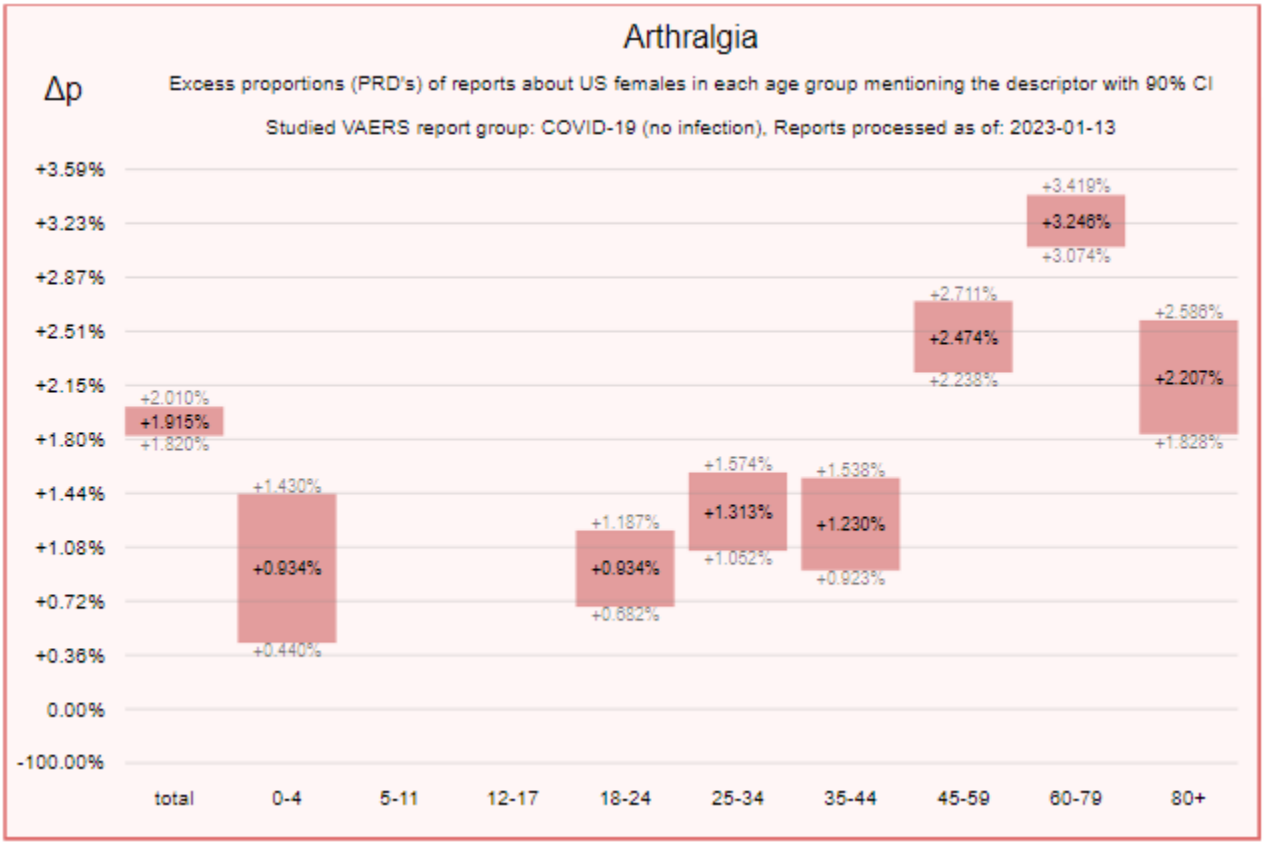

Vertigo
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.14%
+1.03%
+0.91%
+0.80%
+0.68%
+0.57%
+0.46%
+0.34%
+0.23%
+0.11%
0.00%
-100.00%
+0.641%
+0.610%
+0.579%
+0.188%
+0.090%
-0.008%
+0.349%
+0.270%
+0.190%
+0.642%
+0.552%
+0.463%
+0.702%
+0.598%
+0.495%
+0.988%
+0.907%
+0.827%
+0.892%
+0.833%
+0.774%
+0.477%
+0.353%
+0.228%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Vertigo
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.14%
+1.03%
+0.91%
+0.80%
+0.68%
+0.57%
+0.46%
+0.34%
+0.23%
+0.11%
0.00%
-100.00%
+0.733%
+0.693%
+0.654%
+0.279%
+0.126%
-0.027%
+0.090%
+0.010%
-0.070%
+0.392%
+0.291%
+0.191%
+0.718%
+0.611%
+0.505%
+0.735%
+0.613%
+0.491%
+1.083%
+0.989%
+0.895%
+0.997%
+0.925%
+0.853%
+0.604%
+0.447%
+0.291%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.5.17 Arthralgia

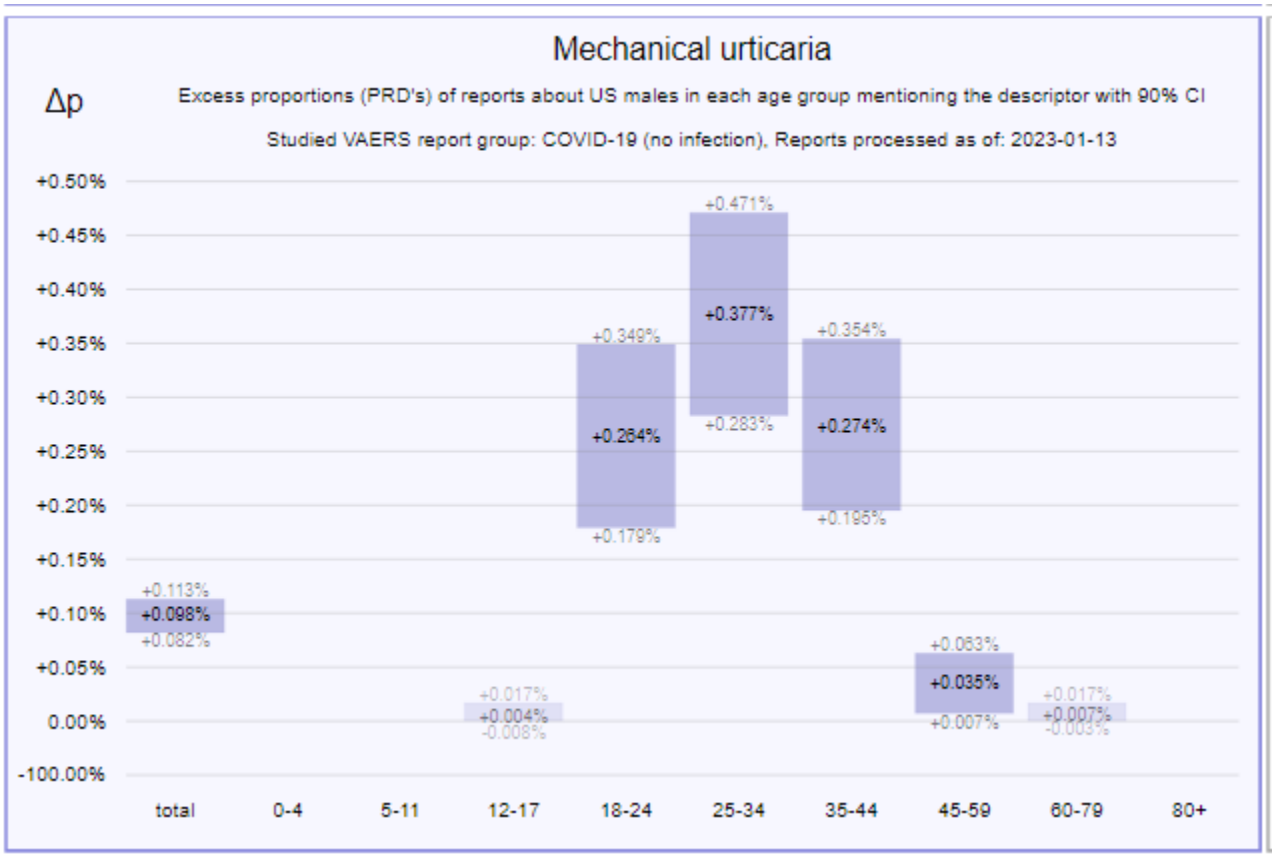


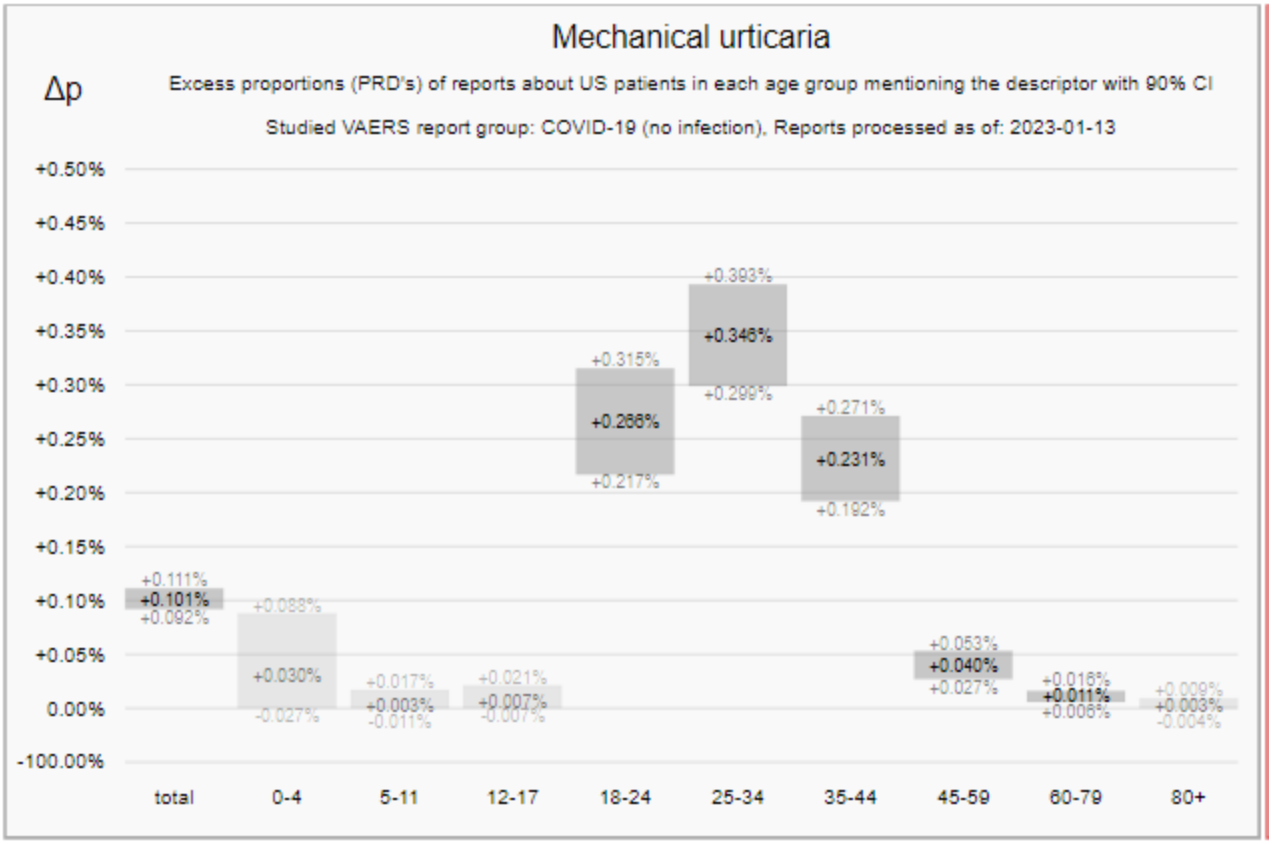

Arthralgia
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.59%
+3.23%
+2.87%
+2.51%
+2.15%
+1.80%
+1.44%
+1.08%
+0.72%
+0.36%
0.00%
-100.00%
+1.705%
+1.626%
+1.548%
+1.135%
+0.793%
+0.452%
+0.918%
+0.719%
+0.521%
+1.185%
+0.967%
+0.750%
+1.184%
+0.924%
+0.665%
+2.345%
+2.145%
+1.944%
+3.172%
+3.029%
+2.885%
+2.277%
+1.959%
+1.641%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

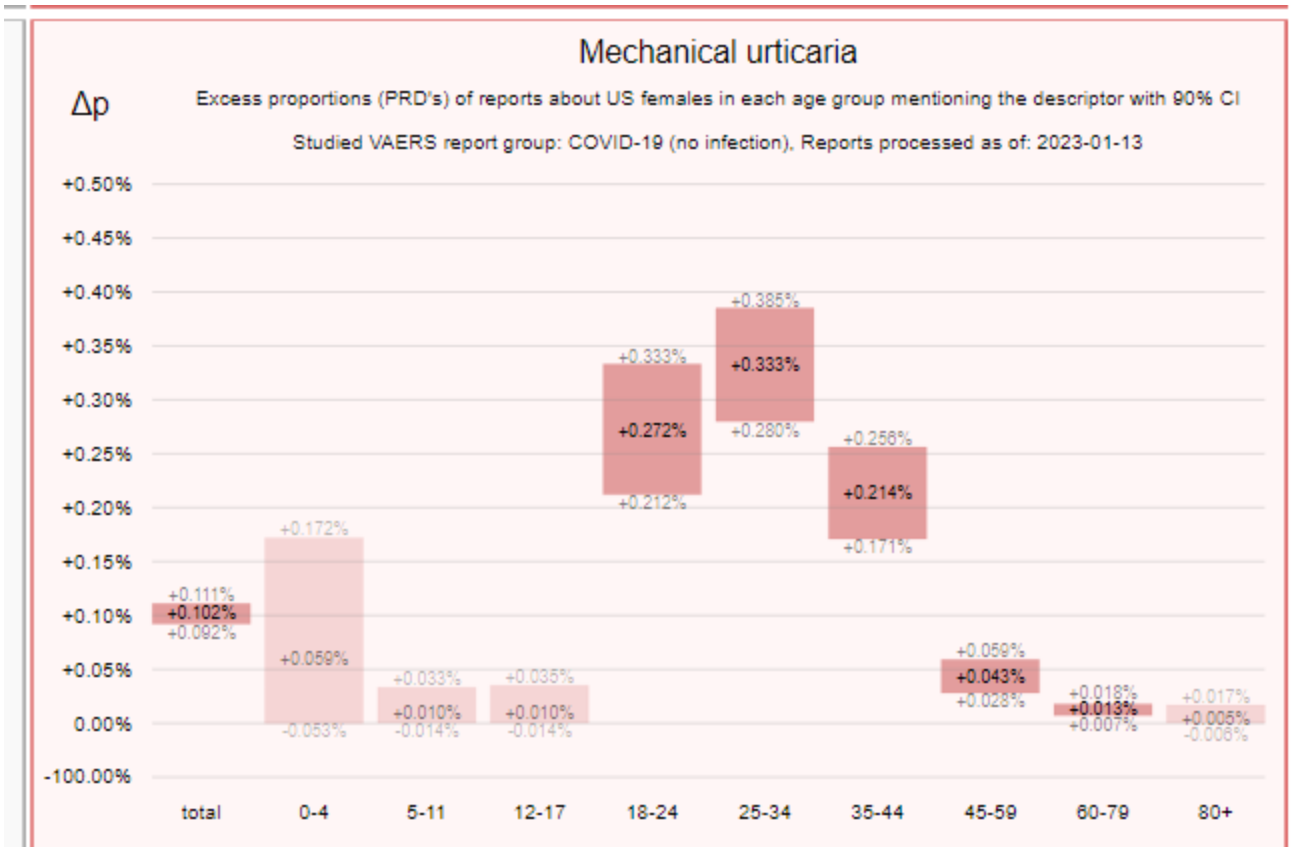

Arthralgia
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+3.59%
+3.23%
+2.87%
+2.51%
+2.15%
+1.80%
+1.44%
+1.08%
+0.72%
+0.36%
0.00%
-100.00%
+2.010%
+1.915%
+1.820%
+1.430%
+0.934%
+0.440%
+1.187%
+0.934%
+0.682%
+1.574%
+1.313%
+1.052%
+1.538%
+1.230%
+0.923%
+2.711%
+2.474%
+2.238%
+3.419%
+3.246%
+3.074%
+2.586%
+2.207%
+1.828%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.6 Skin

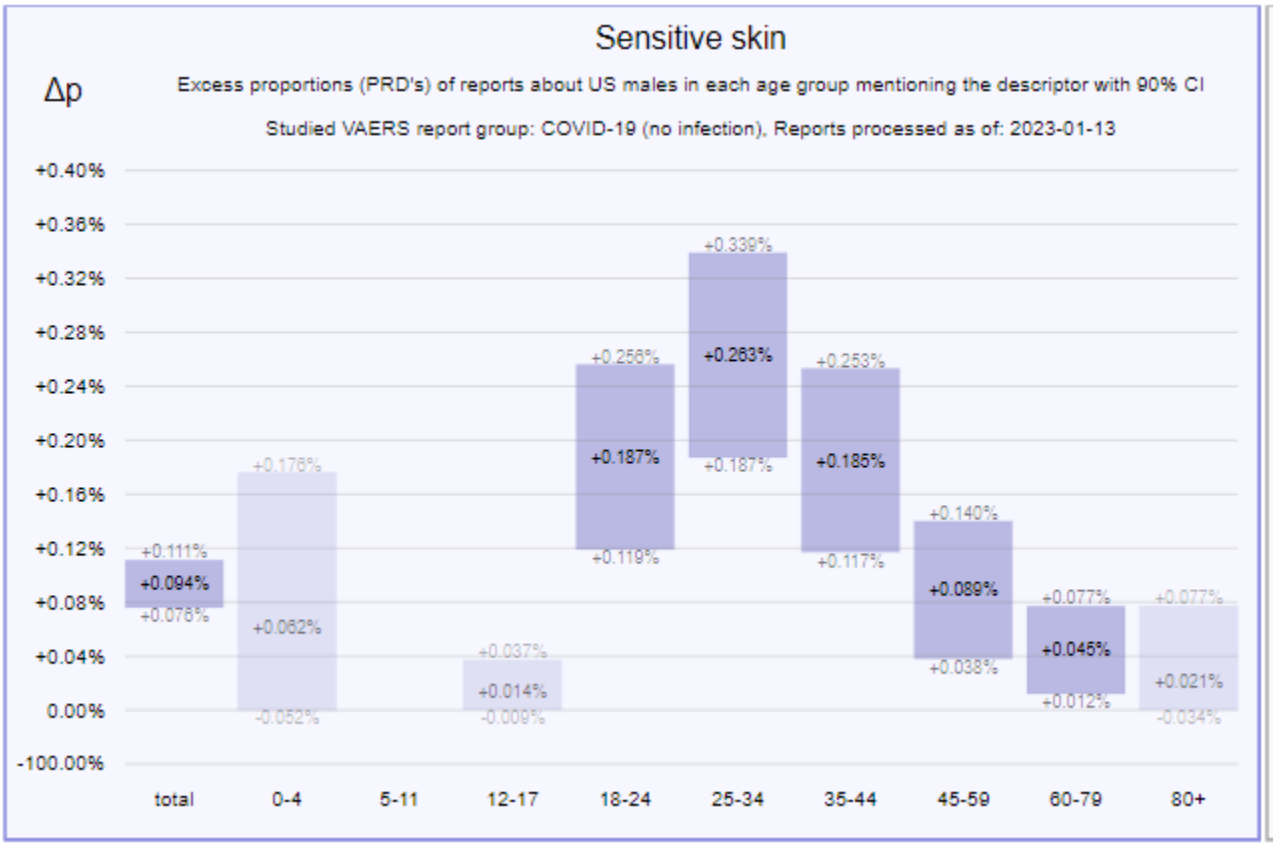
5.2.6.1 Mechanical Urticaria

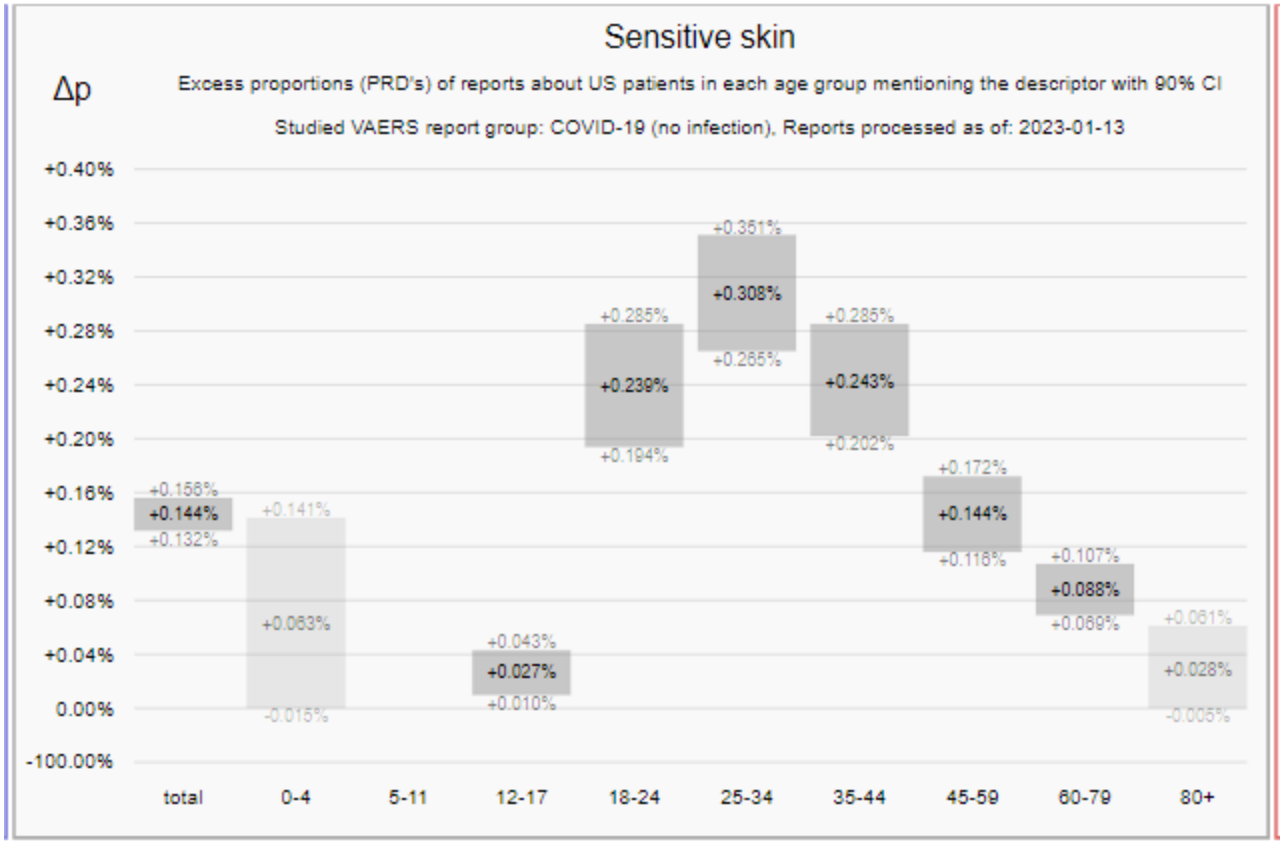


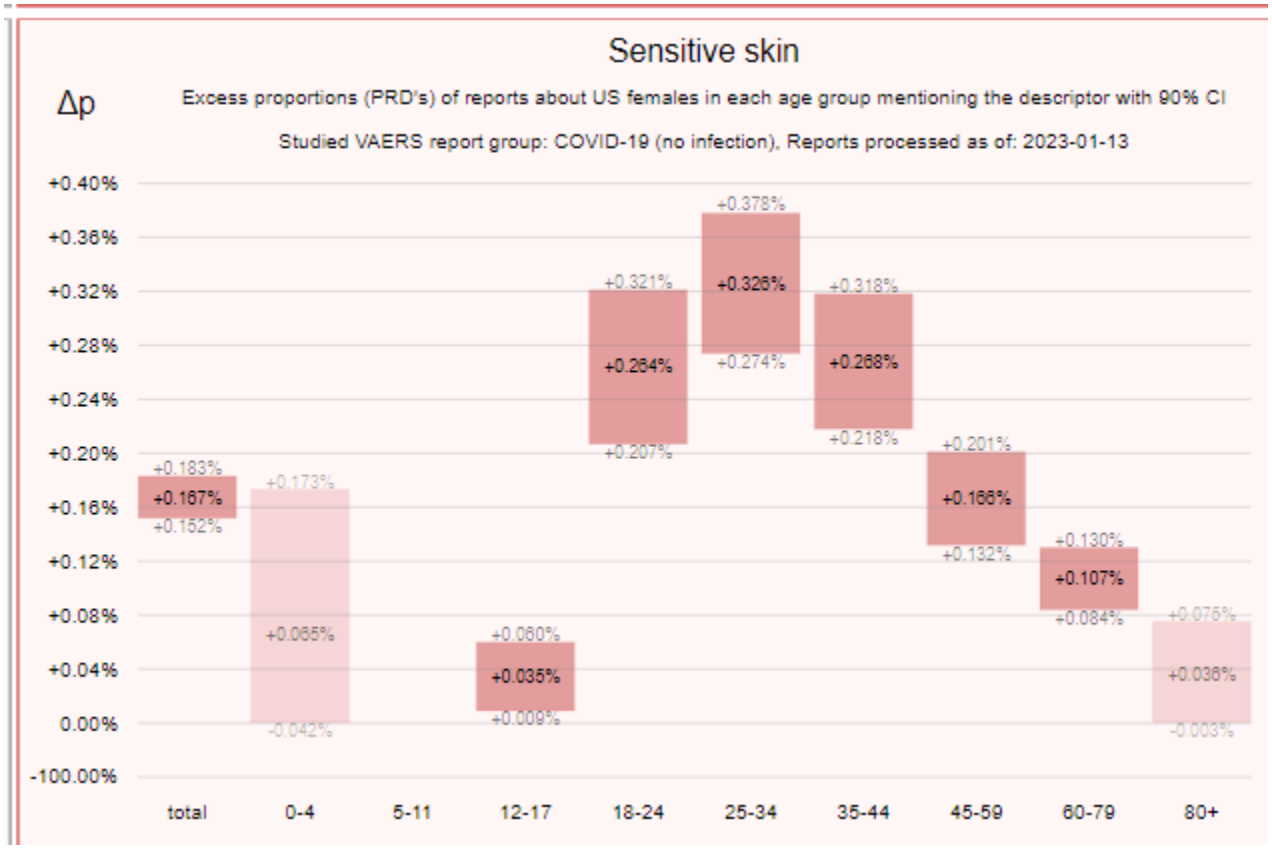

Mechanical urticaria
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.50%
+0.45%
+0.40%
+0.35%
+0.30%
+0.25%
+0.20%
+0.15%
+0.10%
+0.05%
0.00%
-100.00%
+0.111%
+0.101%
+0.092%
+0.088%
+0.030%
-0.027%
+0.017%
+0.003%
-0.011%
+0.021%
+0.007%
-0.007%
+0.315%
+0.266%
+0.217%
+0.393%
+0.346%
+0.299%
+0.271%
+0.231%
+0.192%
+0.053%
+0.040%
+0.027%
+0.016%
+0.011%
+0.006%
+0.009%
+0.003%
-0.004%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Mechanical urticaria
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.50%
+0.45%
+0.40%
+0.35%
+0.30%
+0.25%
+0.20%
+0.15%
+0.10%
+0.05%
0.00%
-100.00%
+0.111%
+0.102%
+0.092%
+0.172%
+0.059%
-0.053%
+0.033%
+0.010%
-0.014%
+0.035%
+0.010%
-0.014%
+0.333%
+0.272%
+0.212%
+0.385%
+0.333%
+0.280%
+0.256%
+0.214%
+0.171%
+0.059%
+0.043%
+0.028%
+0.018%
+0.013%
+0.007%
+0.017%
+0.005%
-0.006%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

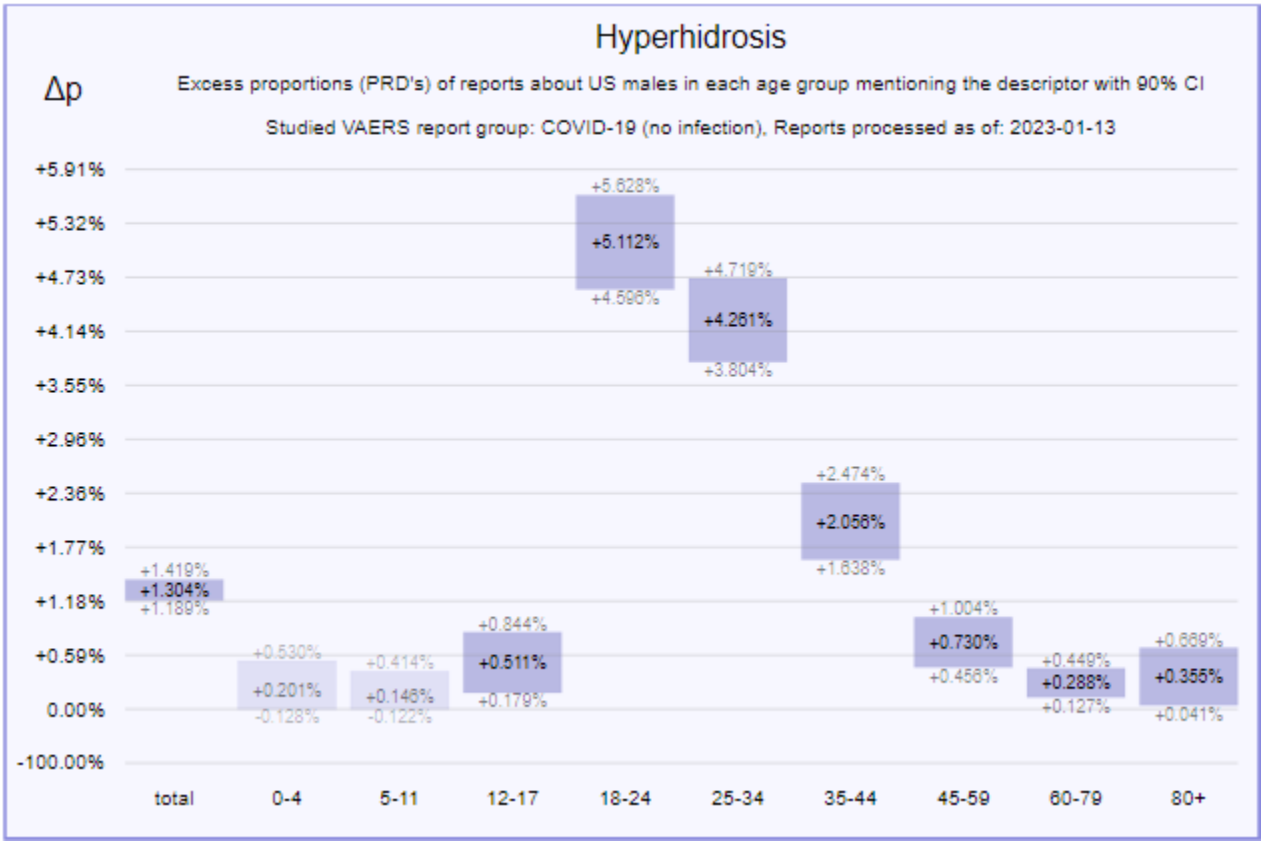
5.2.6.2 Sensitive Skin

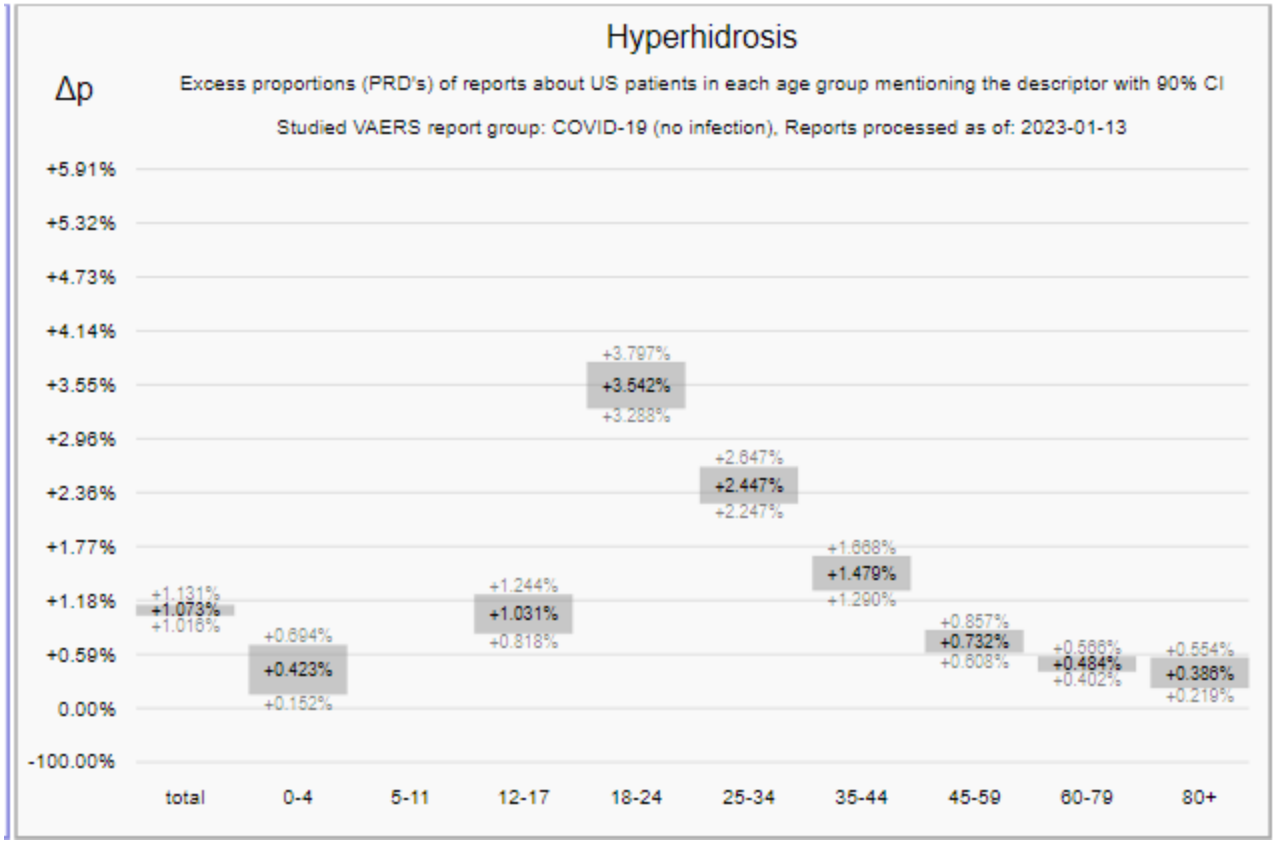


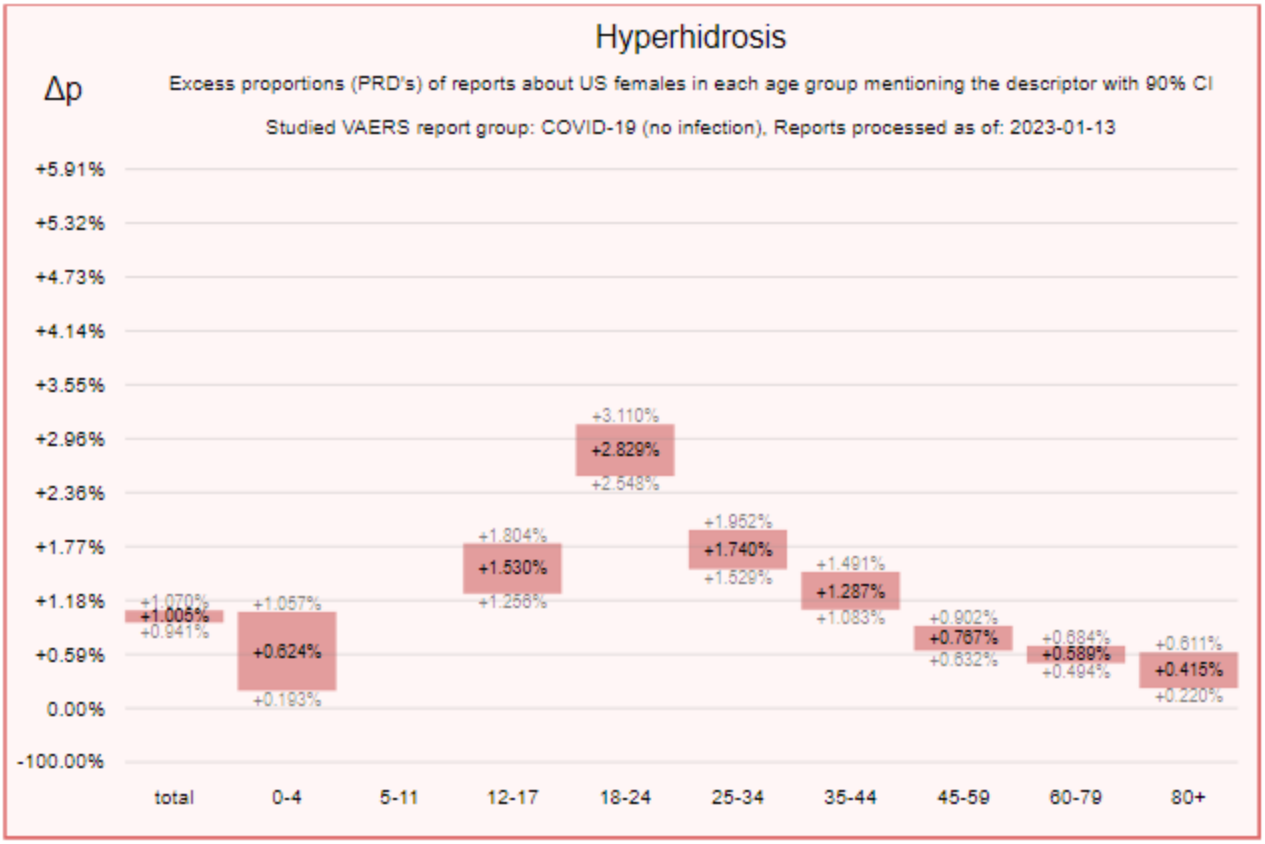

Sensitive skin
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.40%
+0.36%
+0.32%
+0.28%
+0.24%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.156%
+0.144%
+0.132%
+0.141%
+0.063%
-0.015%
+0.043%
+0.027%
+0.010%
+0.285%
+0.239%
+0.194%
+0.351%
+0.308%
+0.265%
+0.285%
+0.243%
+0.202%
+0.172%
+0.144%
+0.116%
+0.107%
+0.088%
+0.069%
+0.061%
+0.028%
-0.005%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Sensitive skin
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.40%
+0.36%
+0.32%
+0.28%
+0.24%
+0.20%
+0.16%
+0.12%
+0.08%
+0.04%
0.00%
-100.00%
+0.183%
+0.167%
+0.152%
+0.173%
+0.065%
-0.042%
+0.060%
+0.035%
+0.009%
+0.321%
+0.264%
+0.207%
+0.378%
+0.326%
+0.274%
+0.318%
+0.268%
+0.218%
+0.201%
+0.166%
+0.132%
+0.130%
+0.107%
+0.084%
+0.076%
+0.036%
-0.003%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

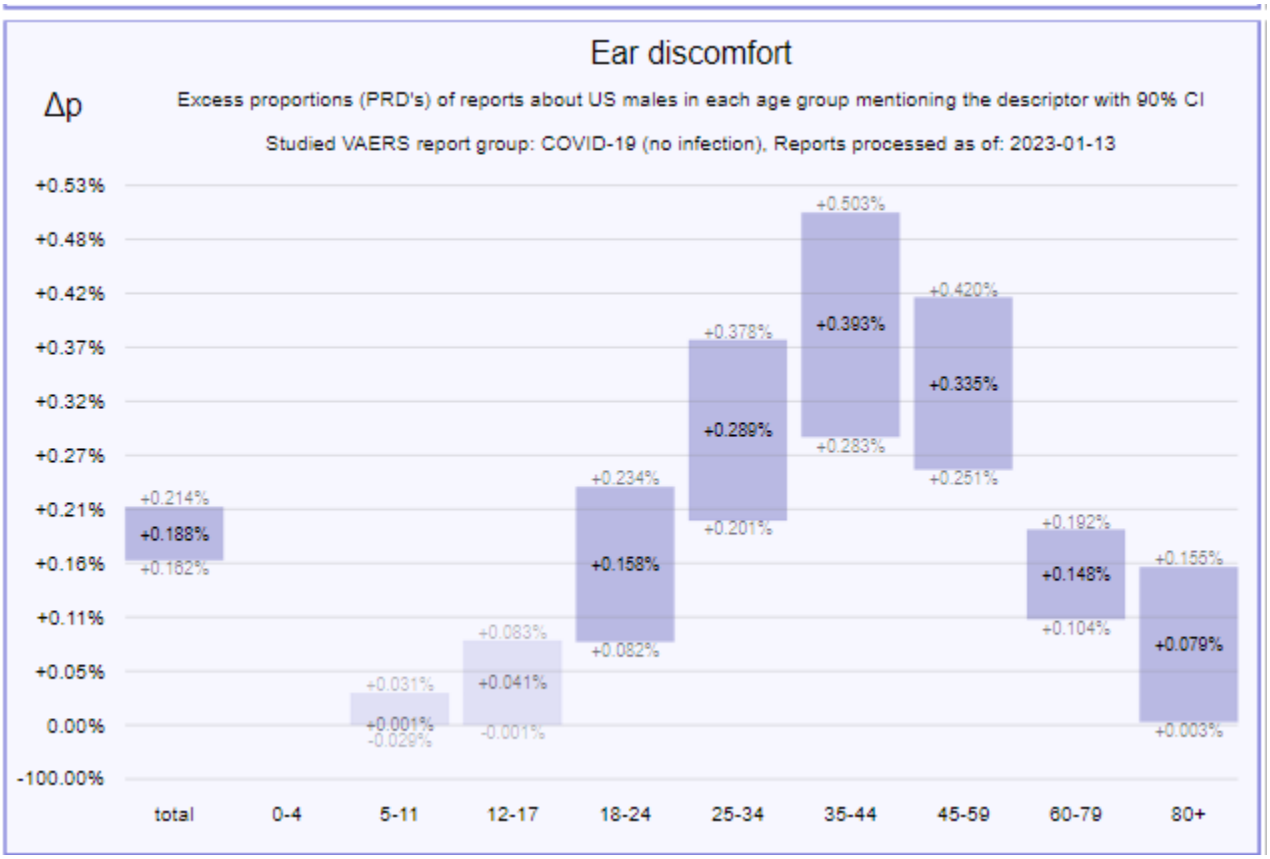
5.2.6.3 Hyperhidrosis

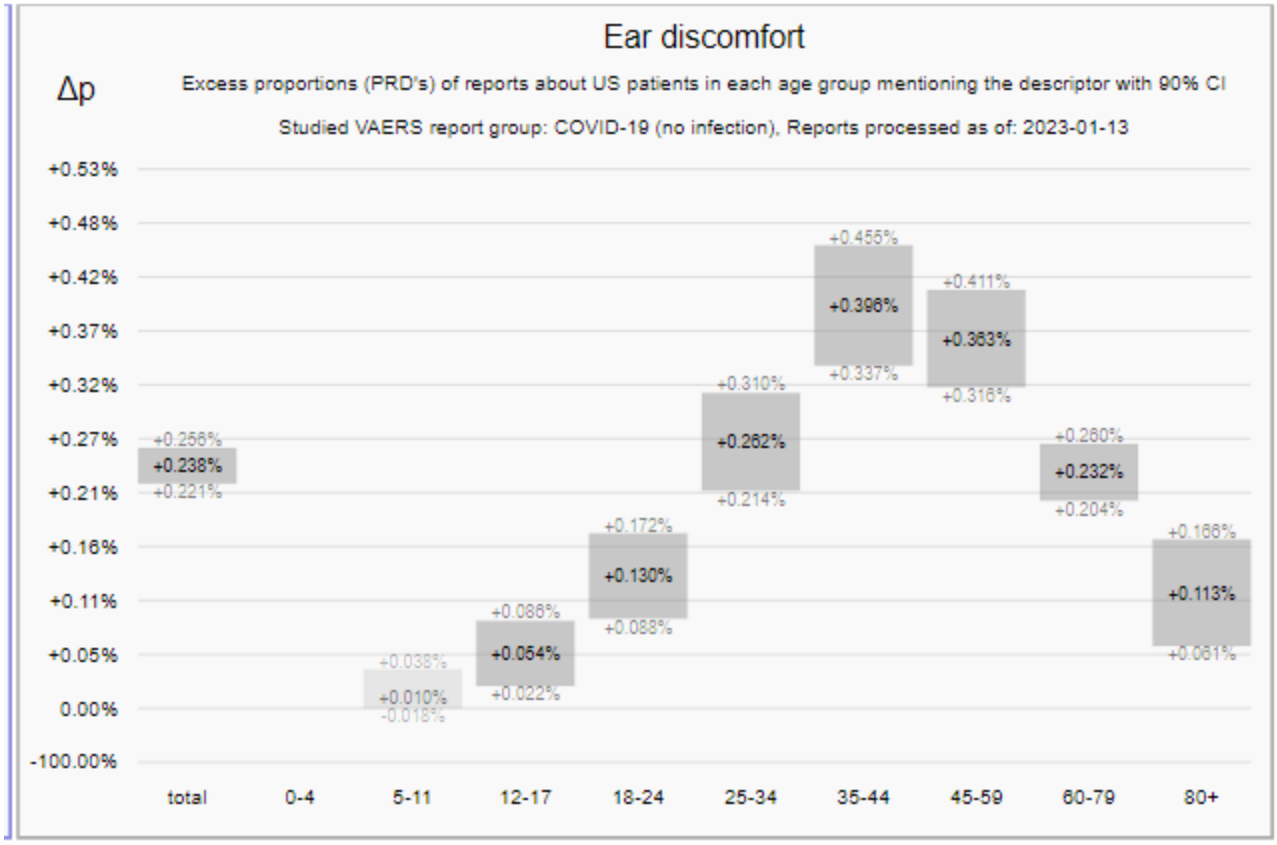


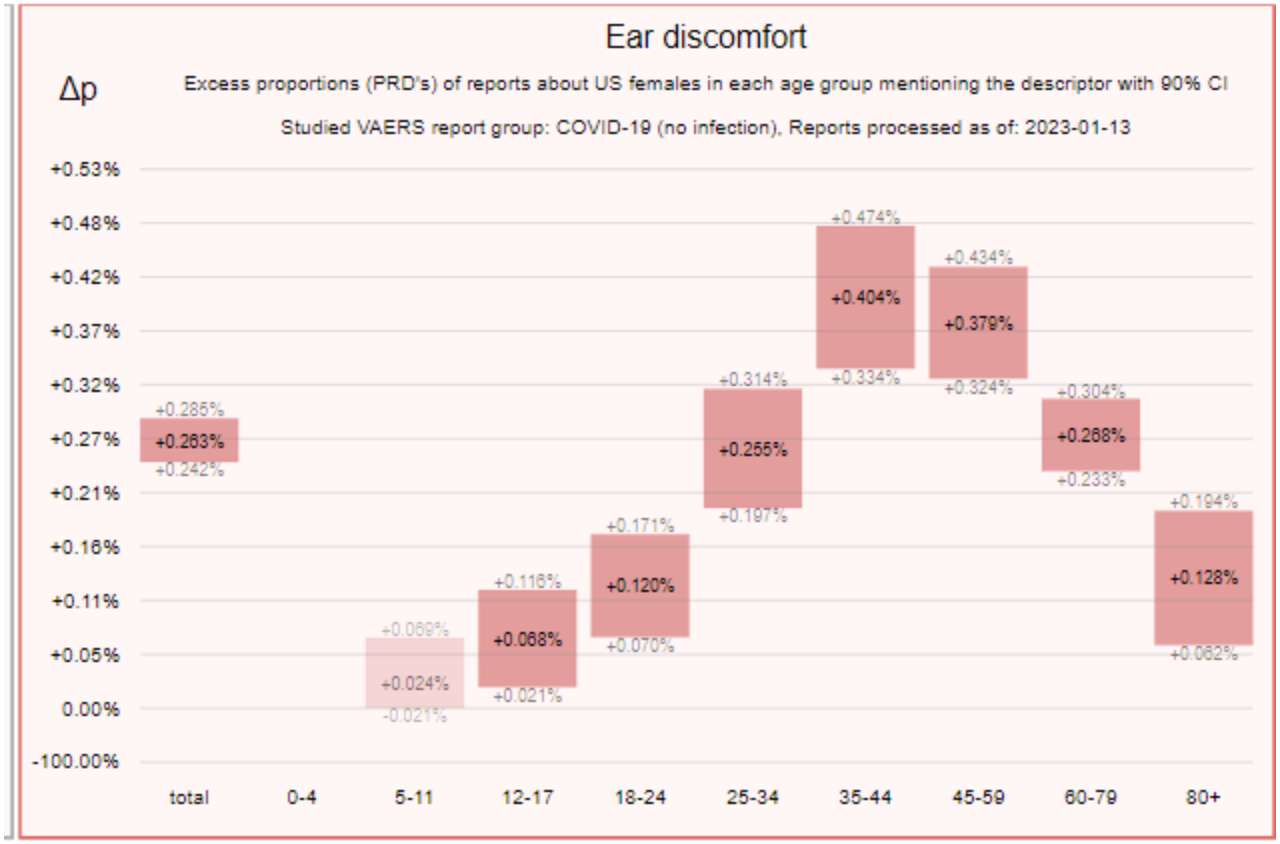

Hyperhidrosis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+5.91%
+5.32%
+4.73%
+4.14%
+3.55%
+2.96%
+2.36%
+1.77%
+1.18%
+0.59%
0.00%
-100.00%
+1.131%
+1.073%
+1.016%
+0.694%
+0.423%
+0.152%
+1.244%
+1.031%
+0.818%
+3.797%
+3.542%
+3.288%
+2.647%
+2.447%
+2.247%
+1.668%
+1.479%
+1.290%
+0.857%
+0.732%
+0.608%
+0.566%
+0.484%
+0.402%
+0.554%
+0.386%
+0.219%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Hyperhidrosis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+5.91%
+5.32%
+4.73%
+4.14%
+3.55%
+2.96%
+2.36%
+1.77%
+1.18%
+0.59%
0.00%
-100.00%
+1.070%
+1.005%
+0.941%
+1.057%
+0.624%
+0.193%
+1.804%
+1.530%
+1.256%
+3.110%
+2.829%
+2.548%
+1.952%
+1.740%
+1.529%
+1.491%
+1.287%
+1.083%
+0.902%
+0.767%
+0.632%
+0.684%
+0.589%
+0.494%
+0.611%
+0.415%
+0.220%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

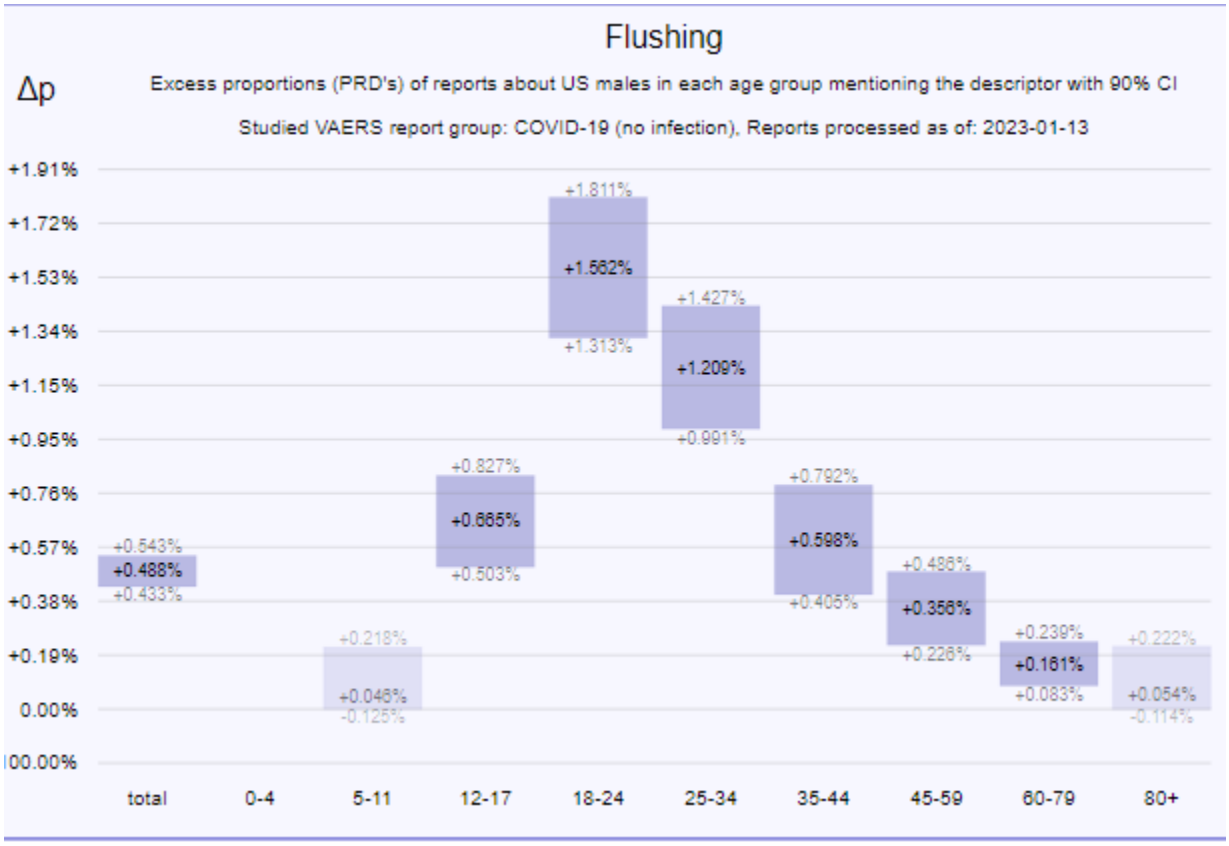
5.2.6.4 Ear Discomfort

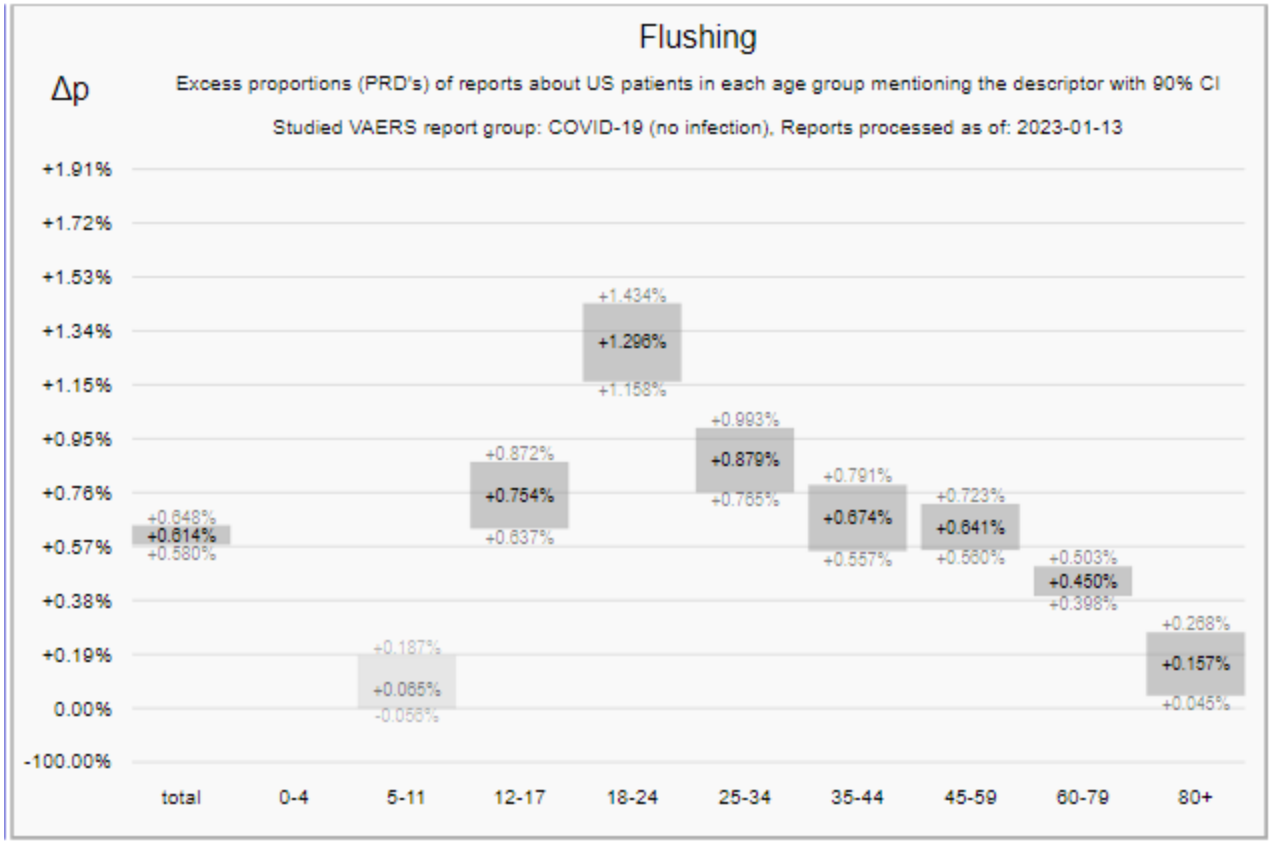


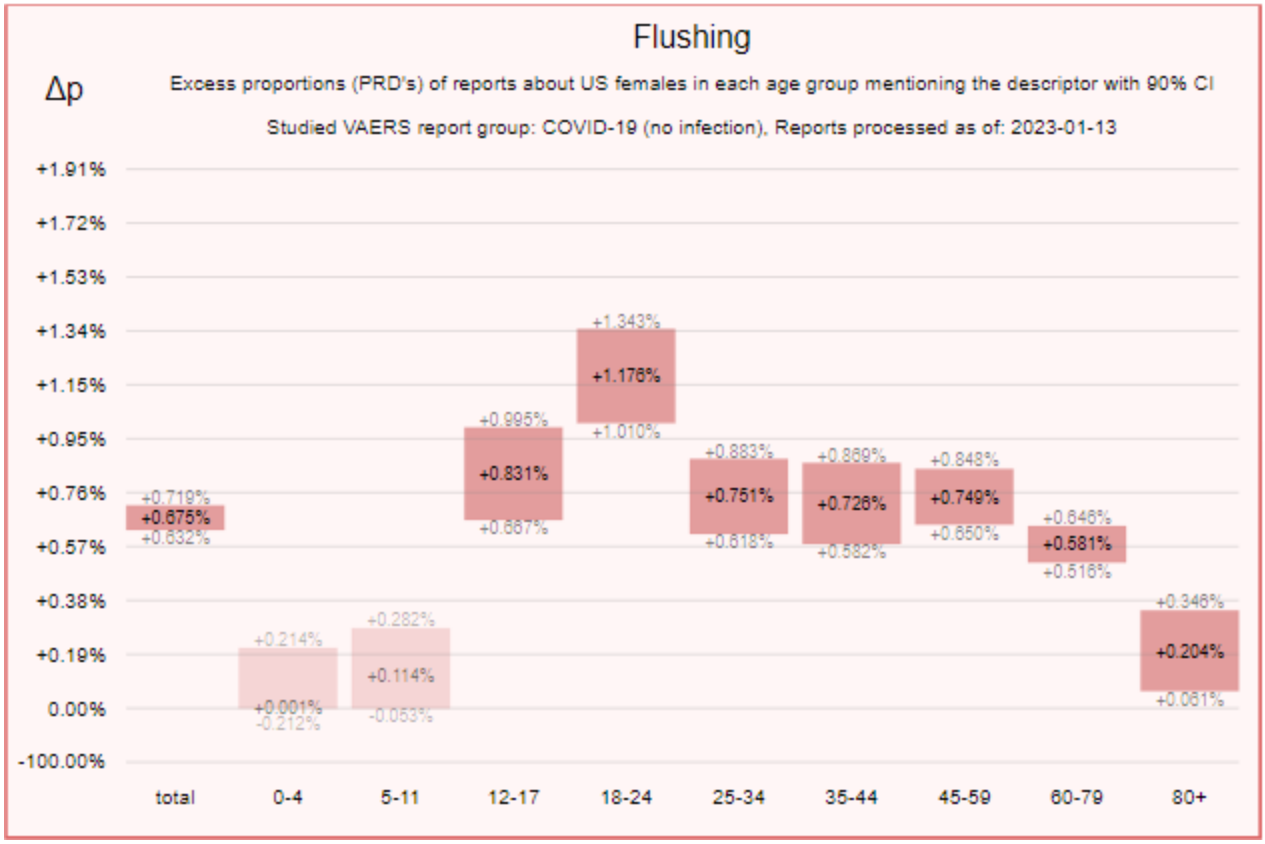

Ear discomfort
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.53%
+0.48%
+0.42%
+0.37%
+0.32%
+0.27%
+0.21%
+0.16%
+0.11%
+0.05%
0.00%
-100.00%
+0.256%
+0.238%
+0.221%
+0.038%
+0.010%
-0.018%
+0.086%
+0.054%
+0.022%
+0.172%
+0.130%
+0.088%
+0.310%
+0.262%
+0.214%
+0.455%
+0.396%
+0.337%
+0.411%
+0.363%
+0.316%
+0.260%
+0.232%
+0.204%
+0.166%
+0.113%
+0.061%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Ear discomfort
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.53%
+0.48%
+0.42%
+0.37%
+0.32%
+0.27%
+0.21%
+0.16%
+0.11%
+0.05%
0.00%
-100.00%
+0.285%
+0.263%
+0.242%
+0.069%
+0.024%
-0.021%
+0.116%
+0.068%
+0.021%
+0.171%
+0.120%
+0.070%
+0.314%
+0.255%
+0.197%
+0.474%
+0.404%
+0.334%
+0.434%
+0.379%
+0.324%
+0.304%
+0.268%
+0.233%
+0.194%
+0.128%
+0.062%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.6.5 Flushing

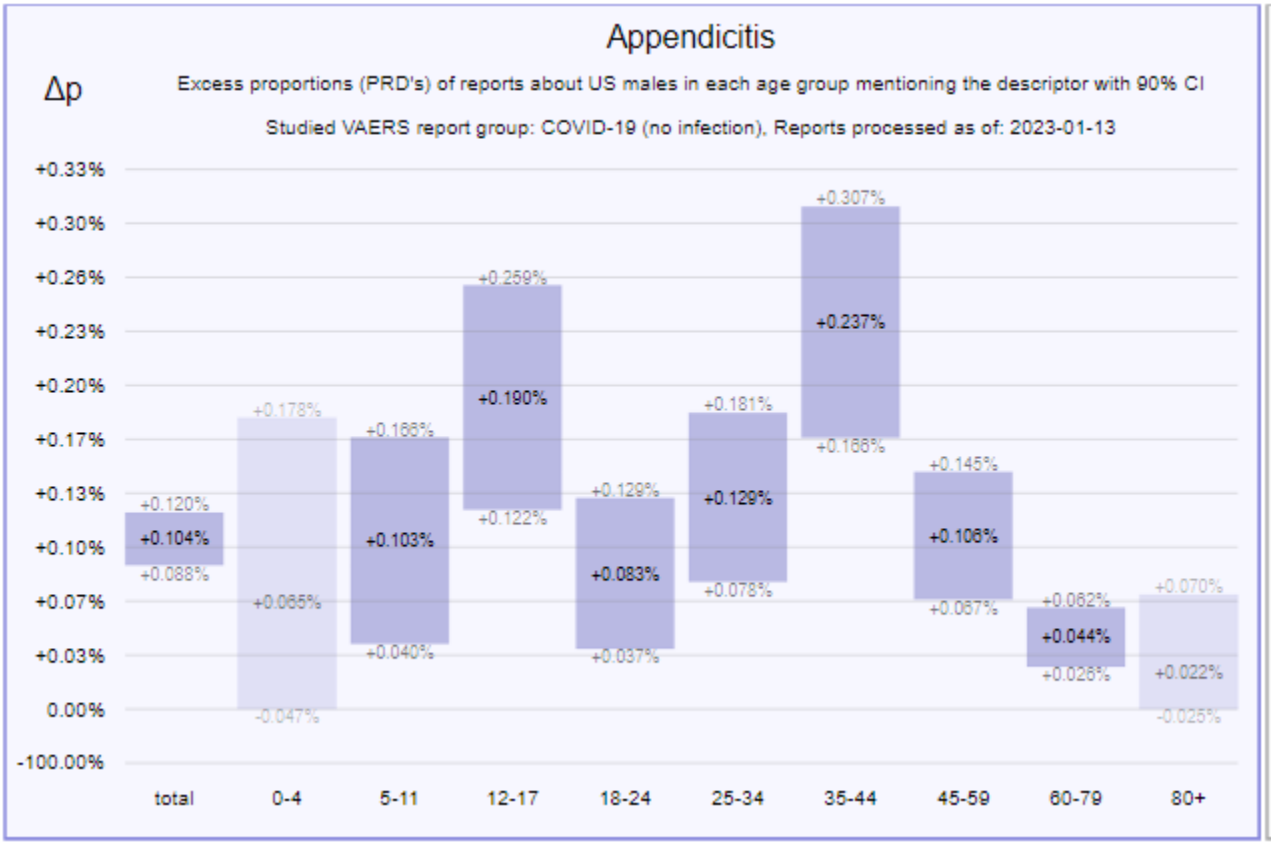


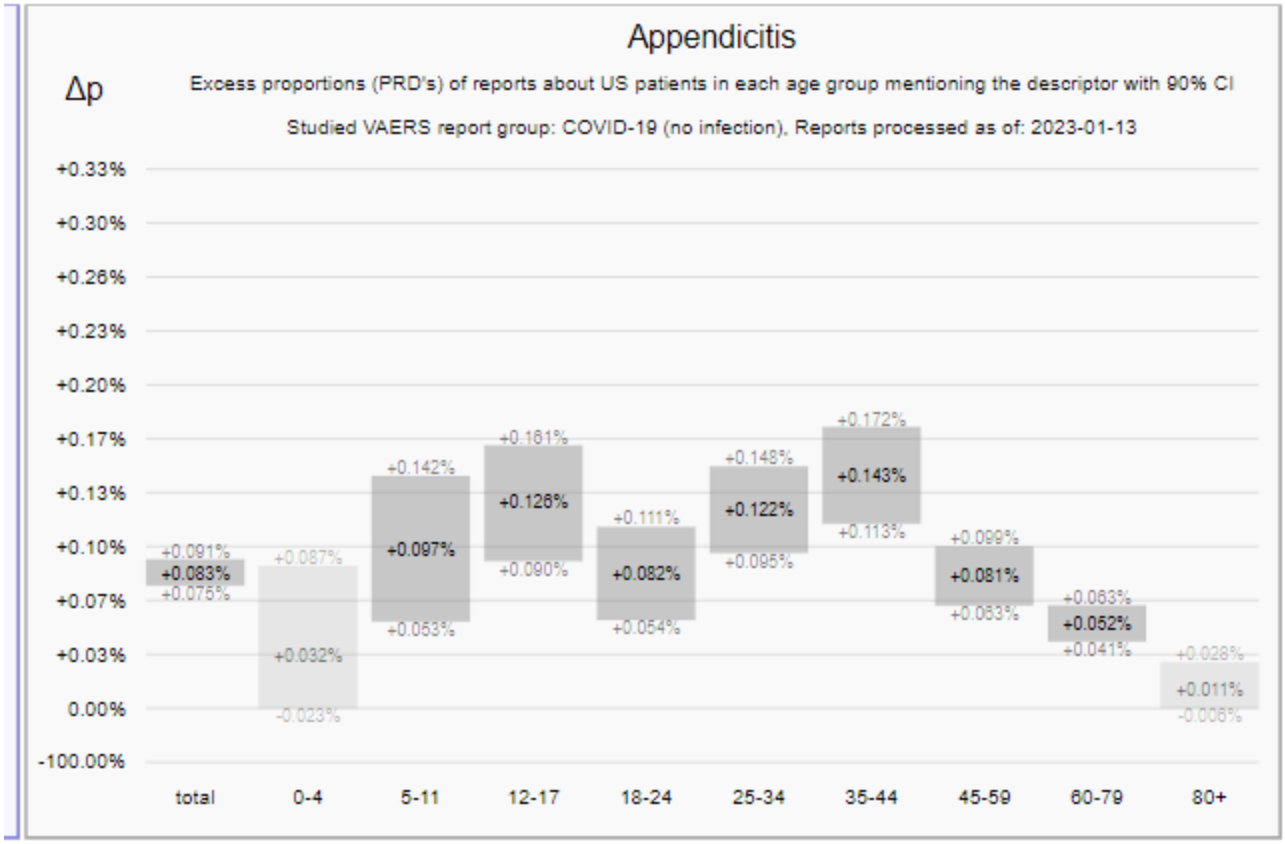

Flushing
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.91%
+1.72%
+1.53%
+1.34%
+1.15%
+0.95%
+0.76%
+0.57%
+0.38%
+0.19%
0.00%
-100.00%
+0.648%
+0.614%
+0.580%
+0.187%
+0.065%
-0.056%
+0.872%
+0.754%
+0.637%
+1.434%
+1.296%
+1.158%
+0.993%
+0.879%
+0.765%
+0.791%
+0.674%
+0.557%
+0.723%
+0.641%
+0.560%
+0.503%
+0.450%
+0.398%
+0.268%
+0.157%
+0.045%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

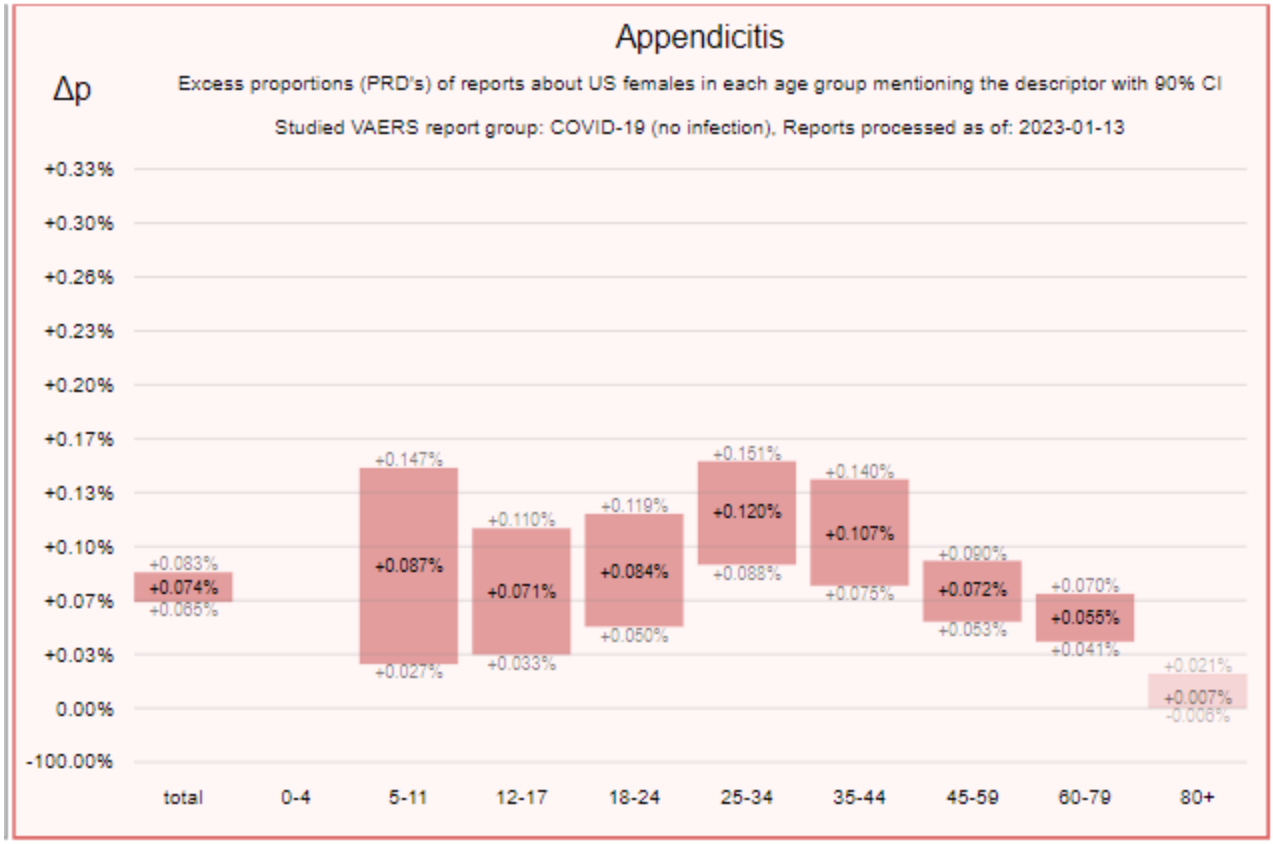

Flushing
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.91%
+1.72%
+1.53%
+1.34%
+1.15%
+0.95%
+0.76%
+0.57%
+0.38%
+0.19%
0.00%
-100.00%
+0.719%
+0.675%
+0.632%
+0.214%
+0.001%
-0.212%
+0.282%
+0.114%
-0.053%
+0.995%
+0.831%
+0.667%
+1.343%
+1.176%
+1.010%
+0.883%
+0.751%
+0.618%
+0.869%
+0.726%
+0.582%
+0.848%
+0.749%
+0.650%
+0.646%
+0.581%
+0.516%
+0.346%
+0.204%
+0.061%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.7 Digestive System

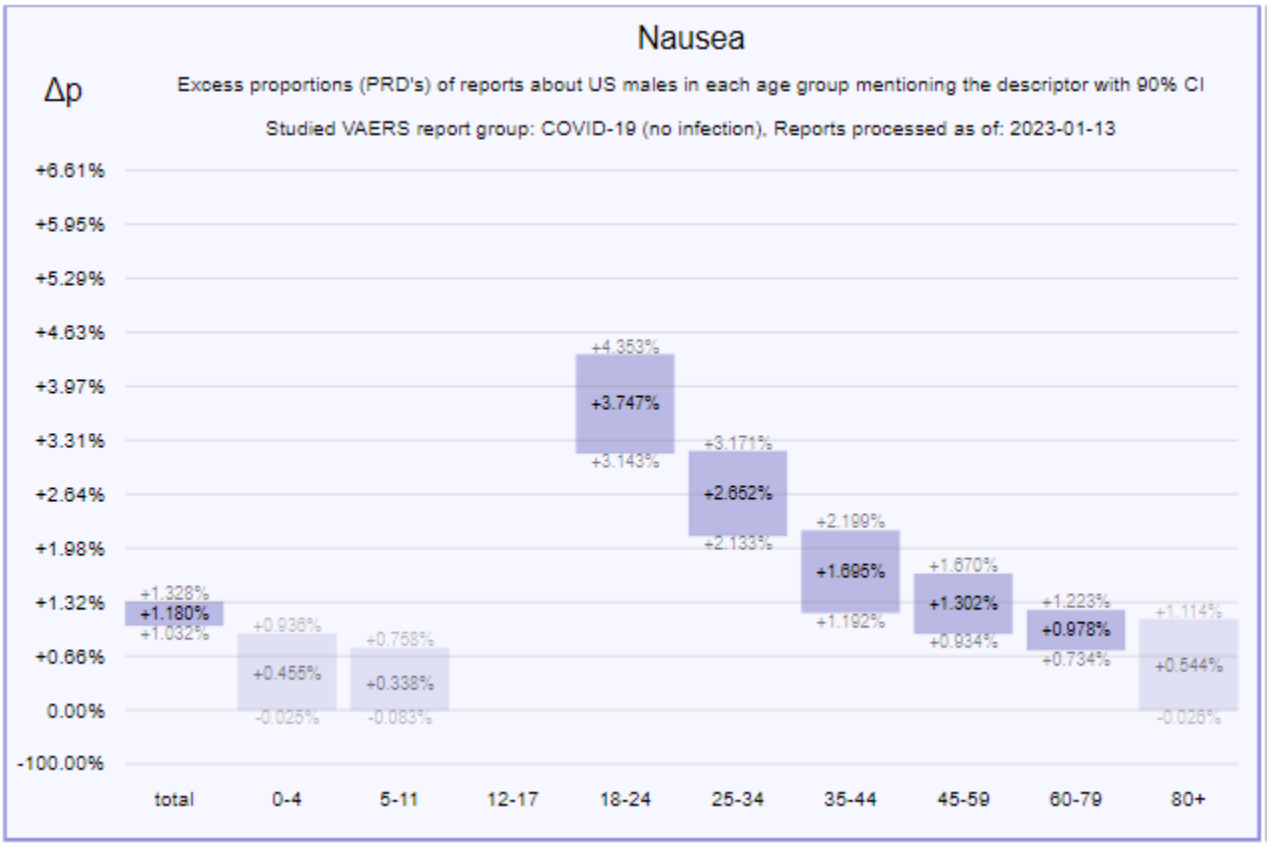
5.2.7.1 Appendicitis

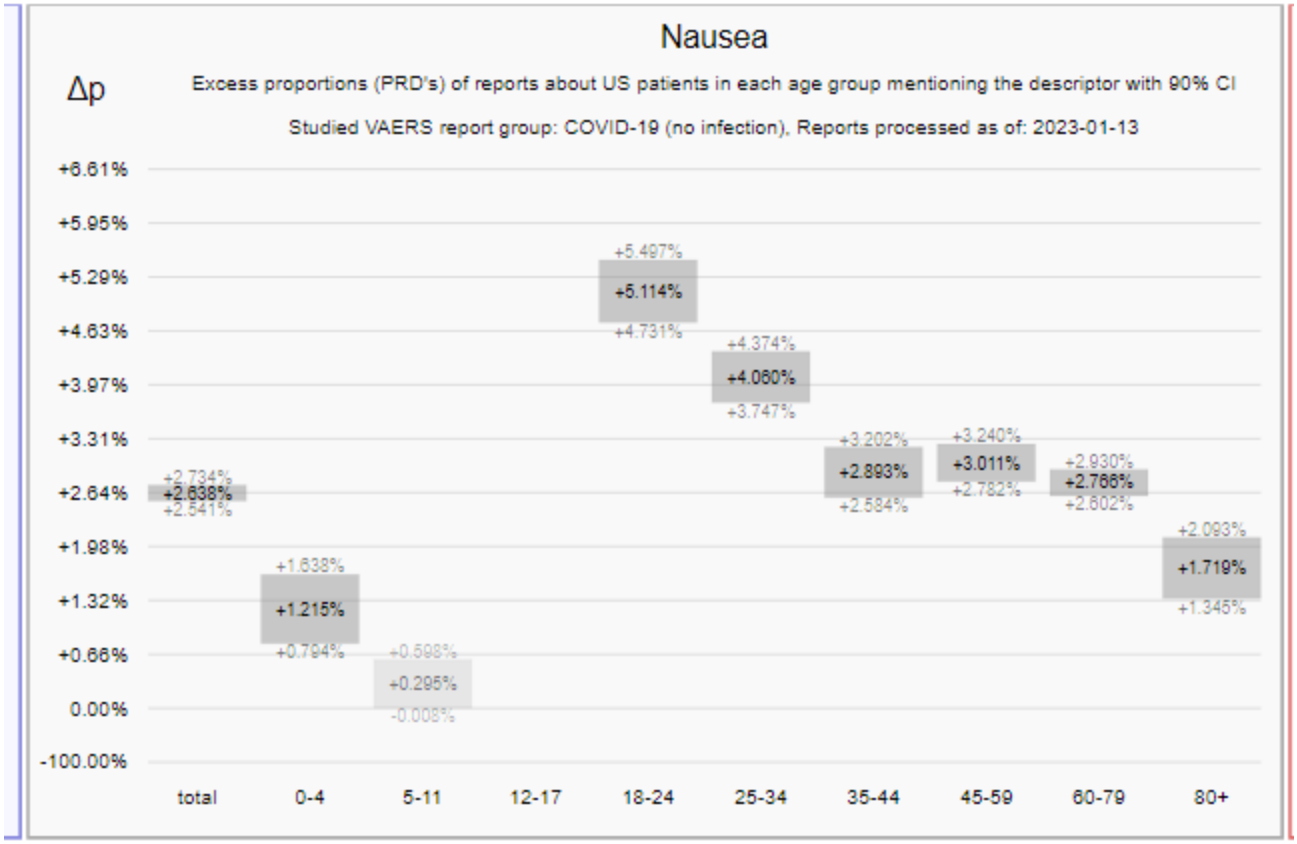


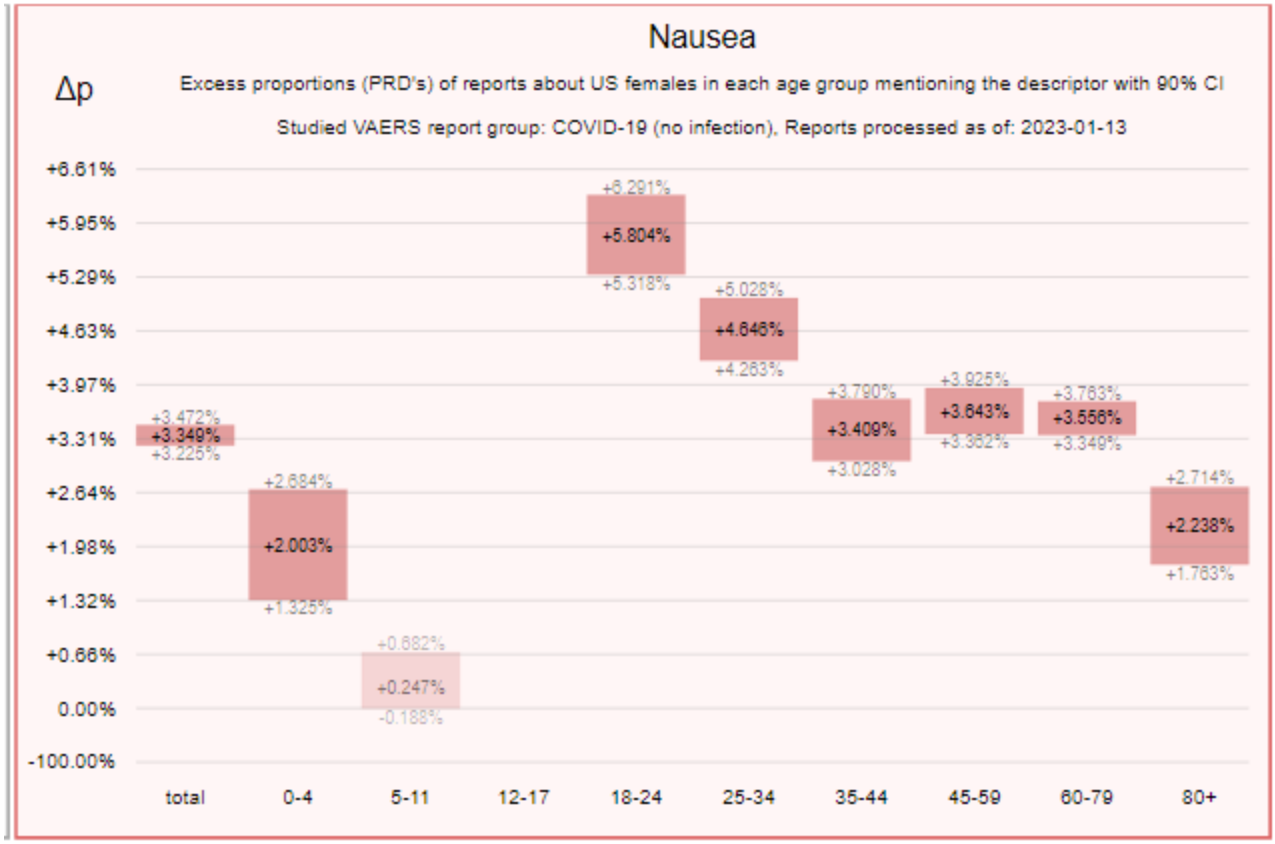

Appendicitis
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.33%
+0.30%
+0.26%
+0.23%
+0.20%
+0.17%
+0.13%
+0.10%
+0.07%
+0.03%
0.00%
-100.00%
+0.091%
+0.083%
+0.075%
+0.087%
+0.032%
-0.023%
+0.142%
+0.097%
+0.053%
+0.161%
+0.126%
+0.090%
+0.111%
+0.082%
+0.054%
+0.148%
+0.122%
+0.095%
+0.172%
+0.143%
+0.113%
+0.099%
+0.081%
+0.063%
+0.063%
+0.052%
+0.041%
+0.028%
+0.011%
-0.006%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Appendicitis
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.33%
+0.30%
+0.26%
+0.23%
+0.20%
+0.17%
+0.13%
+0.10%
+0.07%
+0.03%
0.00%
-100.00%
+0.083%
+0.074%
+0.065%
+0.147%
+0.087%
+0.027%
+0.110%
+0.071%
+0.033%
+0.119%
+0.084%
+0.050%
+0.151%
+0.120%
+0.088%
+0.140%
+0.107%
+0.075%
+0.090%
+0.072%
+0.053%
+0.070%
+0.055%
+0.041%
+0.021%
+0.007%
-0.006%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.7.2 Nausea

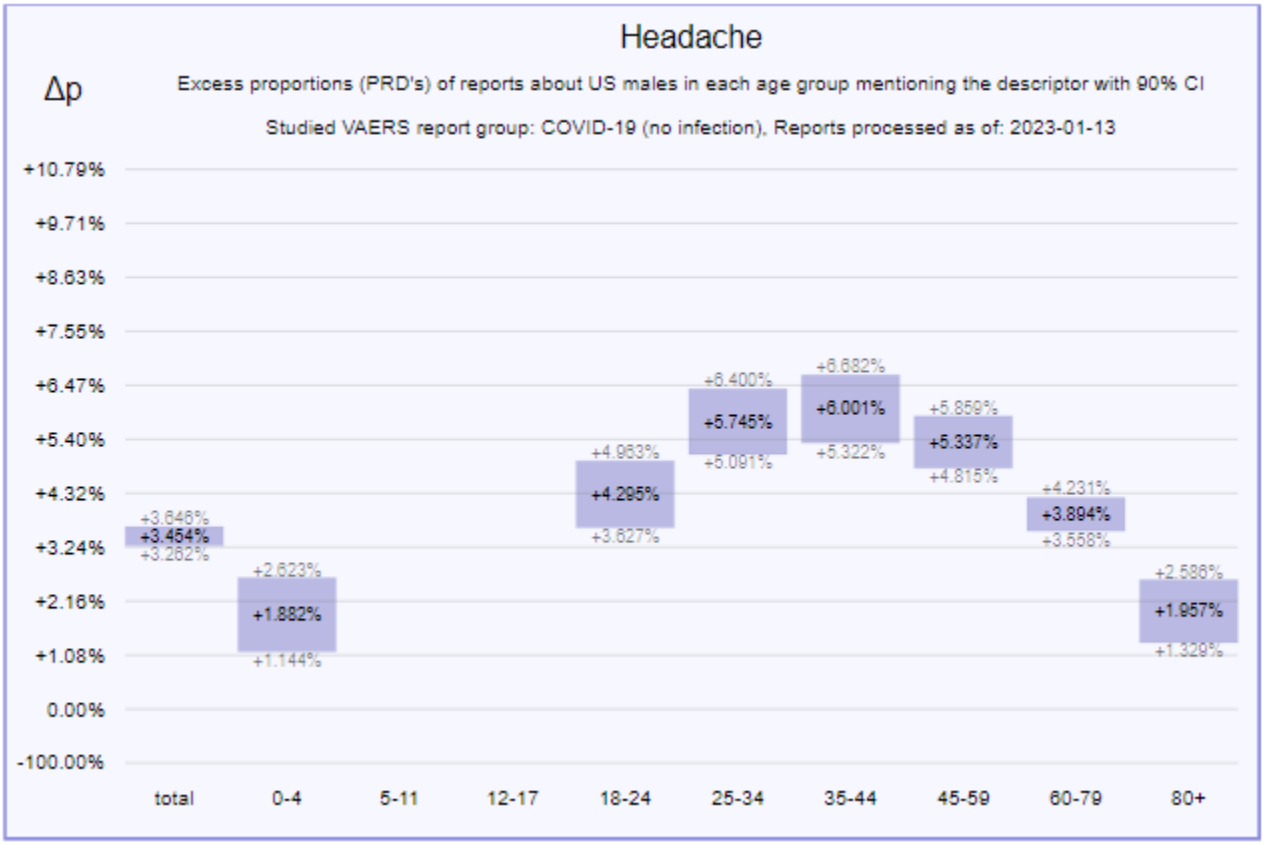

Nausea
Δp
Excess proportions (PRD's) of reports about US males in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+6.61%
+5.95%
+5.29%
+4.63%
+3.97%
+3.31%
+2.64%
+1.98%
+1.32%
+0.66%
0.00%
-100.00%
+1.328%
+1.180%
+1.032%
+0.936%
+0.455%
-0.025%
+0.758%
+0.338%
-0.083%
+4.353%
+3.747%
+3.143%
+3.171%
+2.652%
+2.133%
+2.199%
+1.695%
+1.192%
+1.670%
+1.302%
+0.934%
+1.223%
+0.978%
+0.734%
+1.114%
+0.544%
-0.026%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

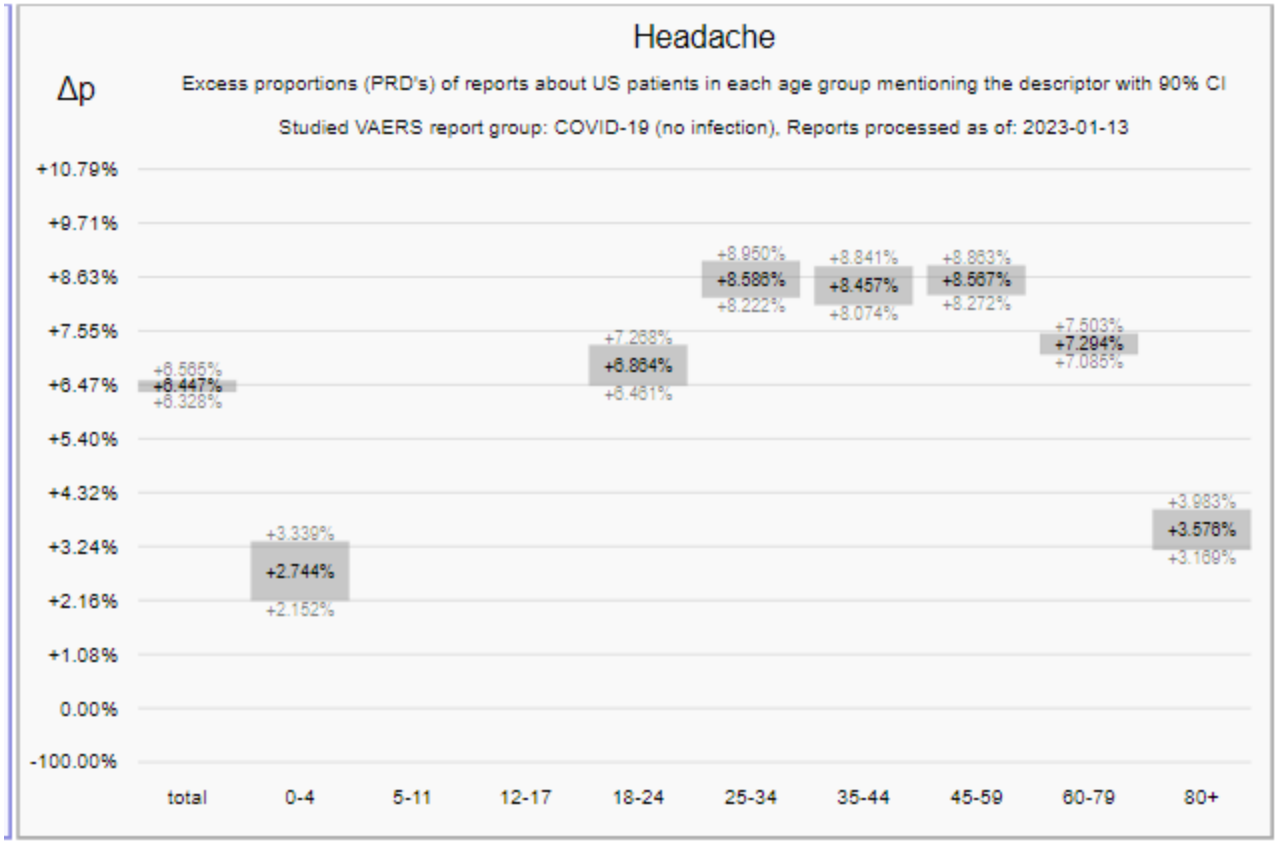

Nausea
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+6.61%
+5.95%
+5.29%
+4.63%
+3.97%
+3.31%
+2.64%
+1.98%
+1.32%
+0.66%
0.00%
-100.00%
+2.734%
+2.638%
+2.541%
+1.638%
+1.215%
+0.794%
+0.598%
+0.295%
-0.008%
+5.497%
+5.114%
+4.731%
+4.374%
+4.060%
+3.747%
+3.202%
+2.893%
+2.584%
+3.240%
+3.011%
+2.782%
+2.930%
+2.766%
+2.602%
+2.093%
+1.719%
+1.345%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

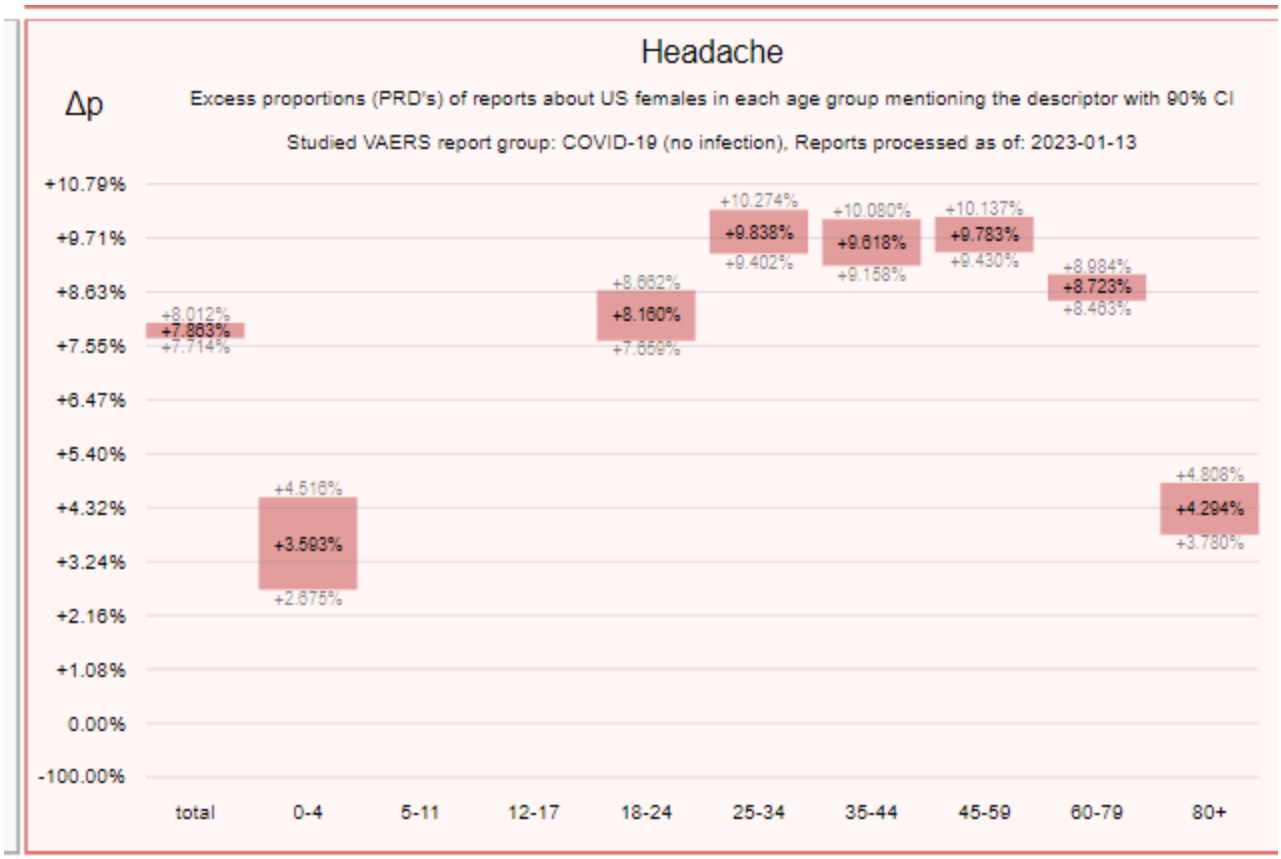

Nausea
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+6.61%
+5.95%
+5.29%
+4.63%
+3.97%
+3.31%
+2.64%
+1.98%
+1.32%
+0.66%
0.00%
-100.00%
+3.472%
+3.349%
+3.225%
+2.684%
+2.003%
+1.325%
+0.682%
+0.247%
-0.188%
+6.291%
+5.804%
+5.318%
+5.028%
+4.646%
+4.263%
+3.790%
+3.409%
+3.028%
+3.925%
+3.643%
+3.362%
+3.763%
+3.556%
+3.349%
+2.714%
+2.238%
+1.763%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.8 Miscellaneous

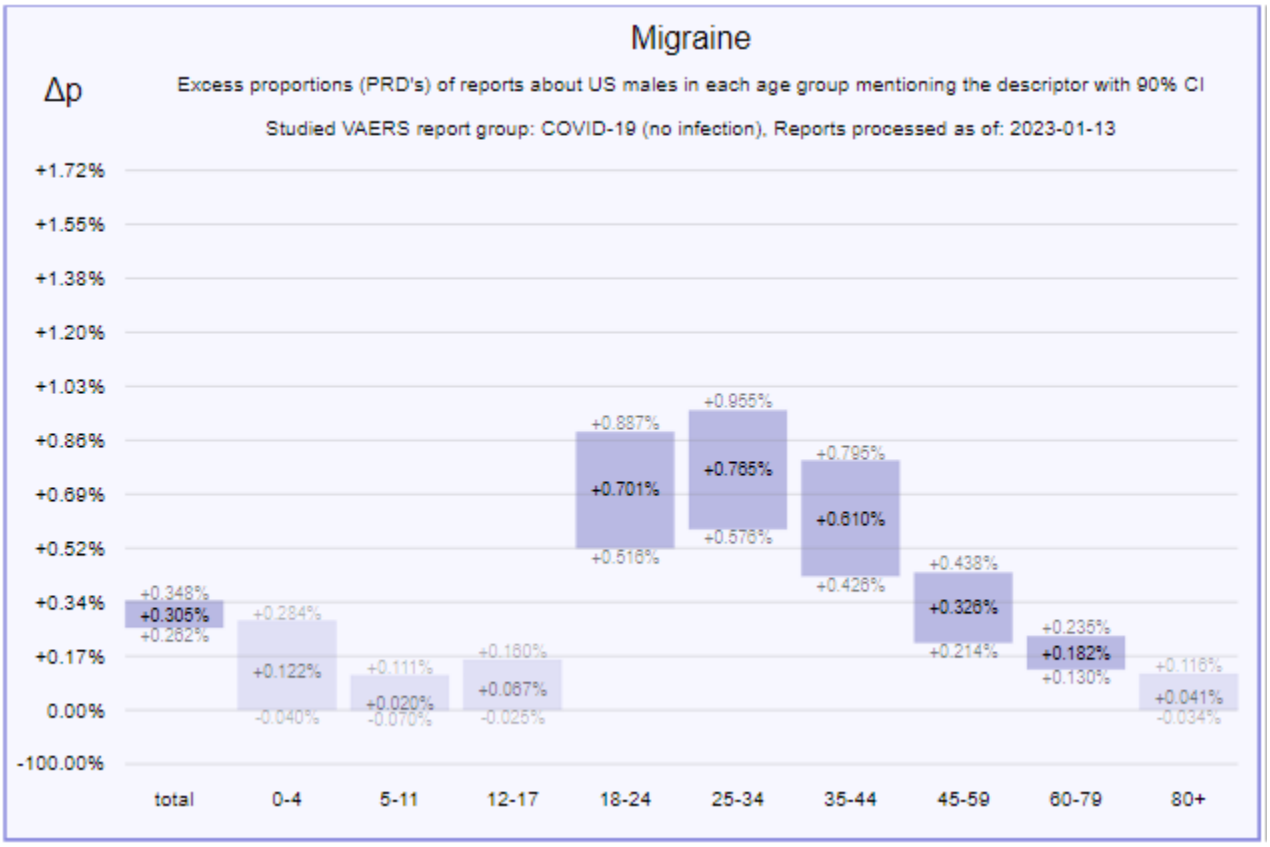
5.2.8.1 Headache

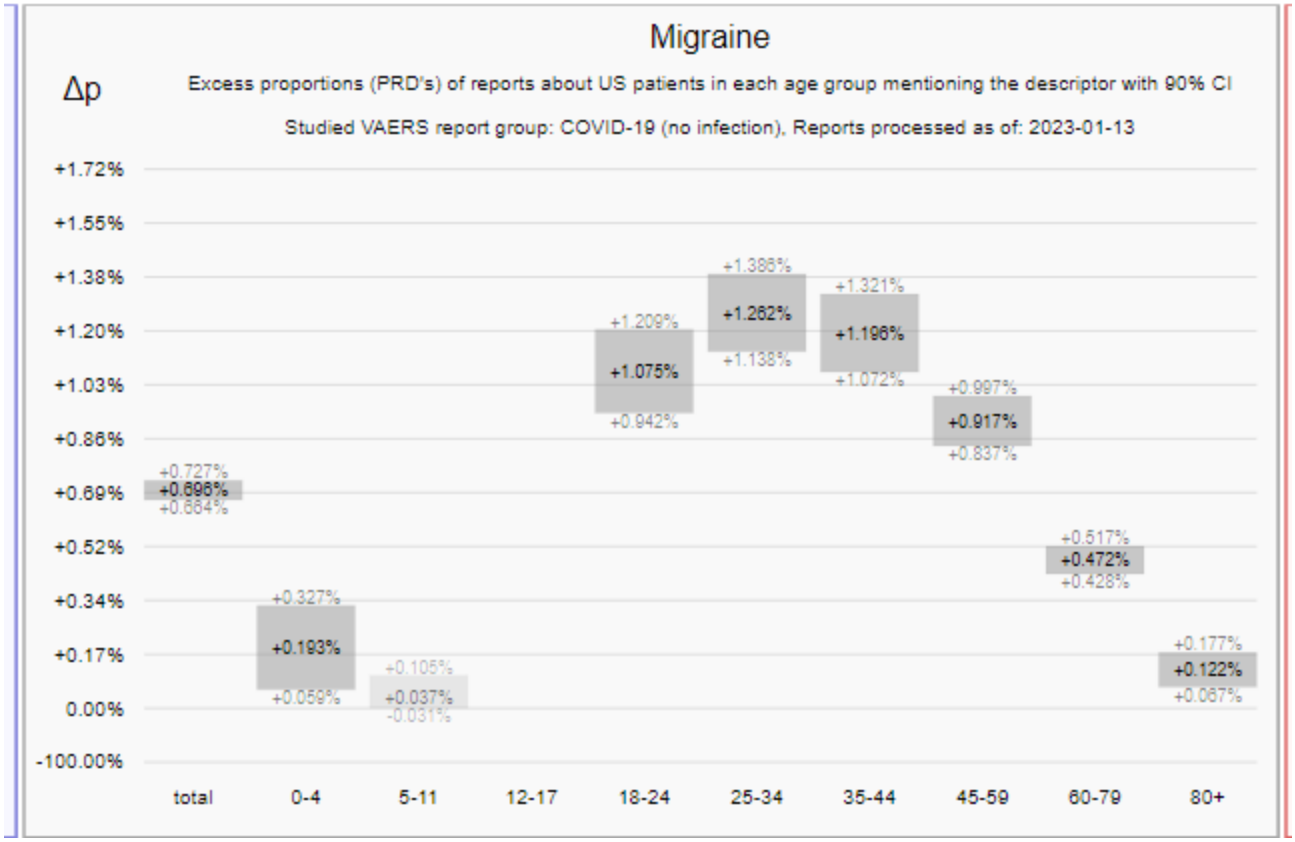


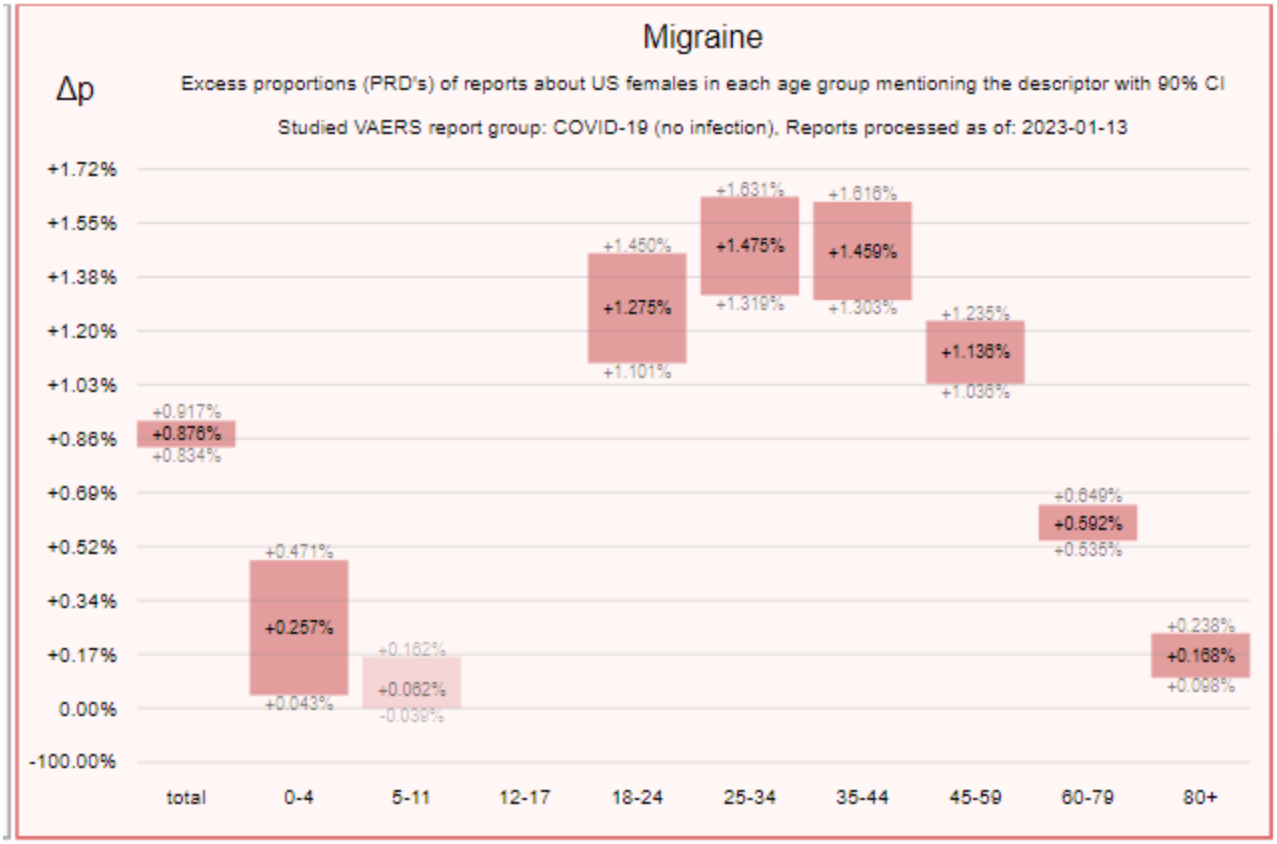

Headache
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+10.79%
+9.71%
+8.63%
+7.55%
+6.47%
+5.40%
+4.32%
+3.24%
+2.16%
+1.08%
0.00%
-100.00%
+6.565%
+6.447%
+6.328%
+3.339%
+2.744%
+2.152%
+7.268%
+6.864%
+6.461%
+8.950%
+8.586%
+8.222%
+8.841%
+8.457%
+8.074%
+8.863%
+8.567%
+8.272%
+7.503%
+7.294%
+7.085%
+3.983%
+3.576%
+3.169%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Headache
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+10.79%
+9.71%
+8.63%
+7.55%
+6.47%
+5.40%
+4.32%
+3.24%
+2.16%
+1.08%
0.00%
-100.00%
+8.012%
+7.863%
+7.714%
+4.516%
+3.593%
+2.675%
+8.662%
+8.160%
+7.659%
+10.274%
+9.838%
+9.402%
+10.080%
+9.618%
+9.158%
+10.137%
+9.783%
+9.430%
+8.984%
+8.723%
+8.463%
+4.808%
+4.294%
+3.780%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

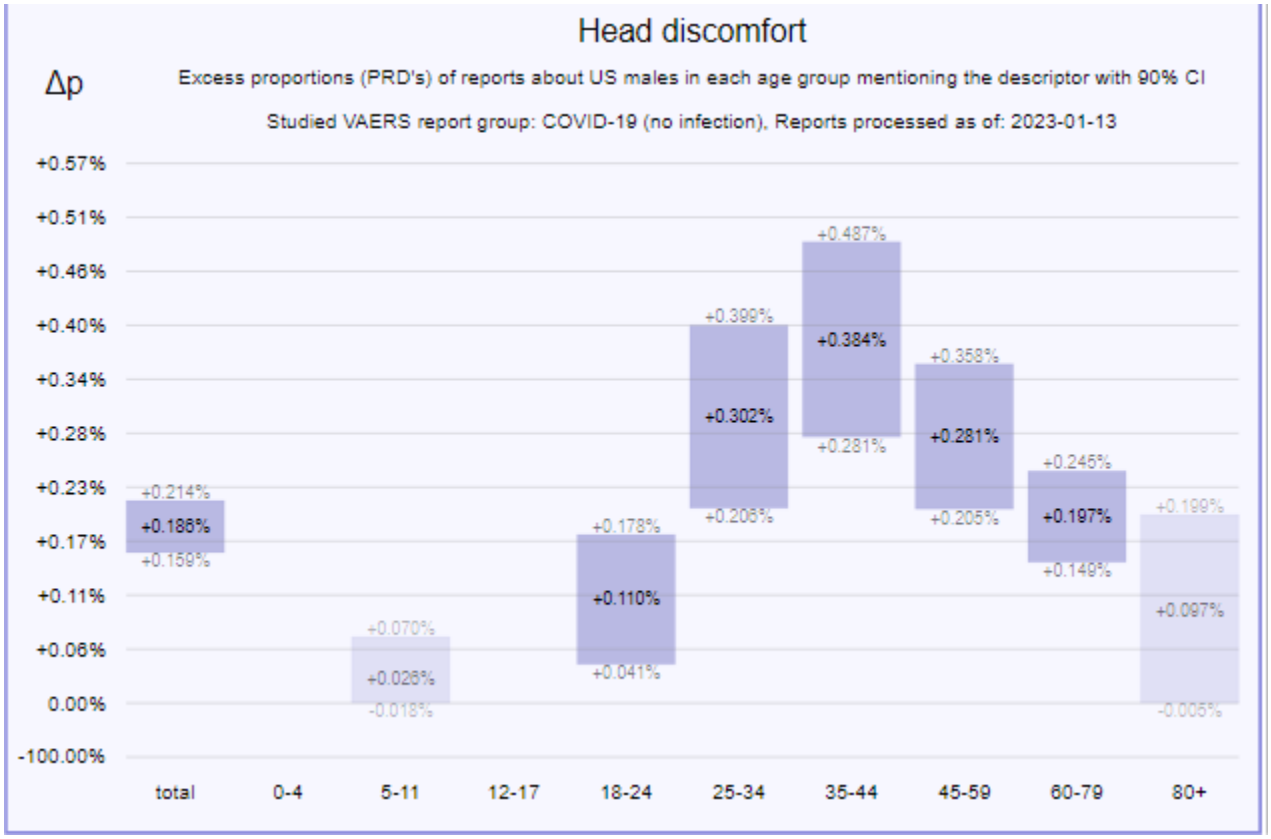
5.2.8.2 Migraine

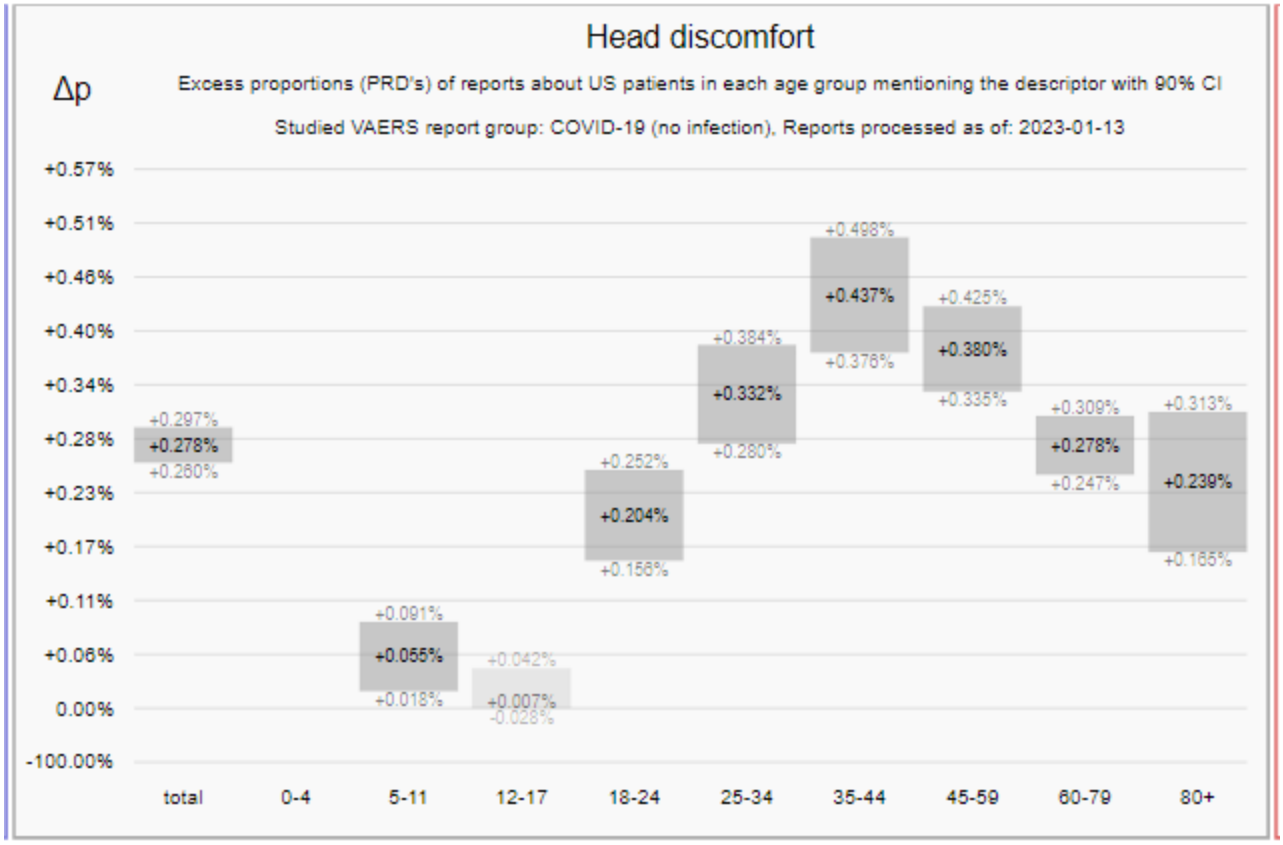


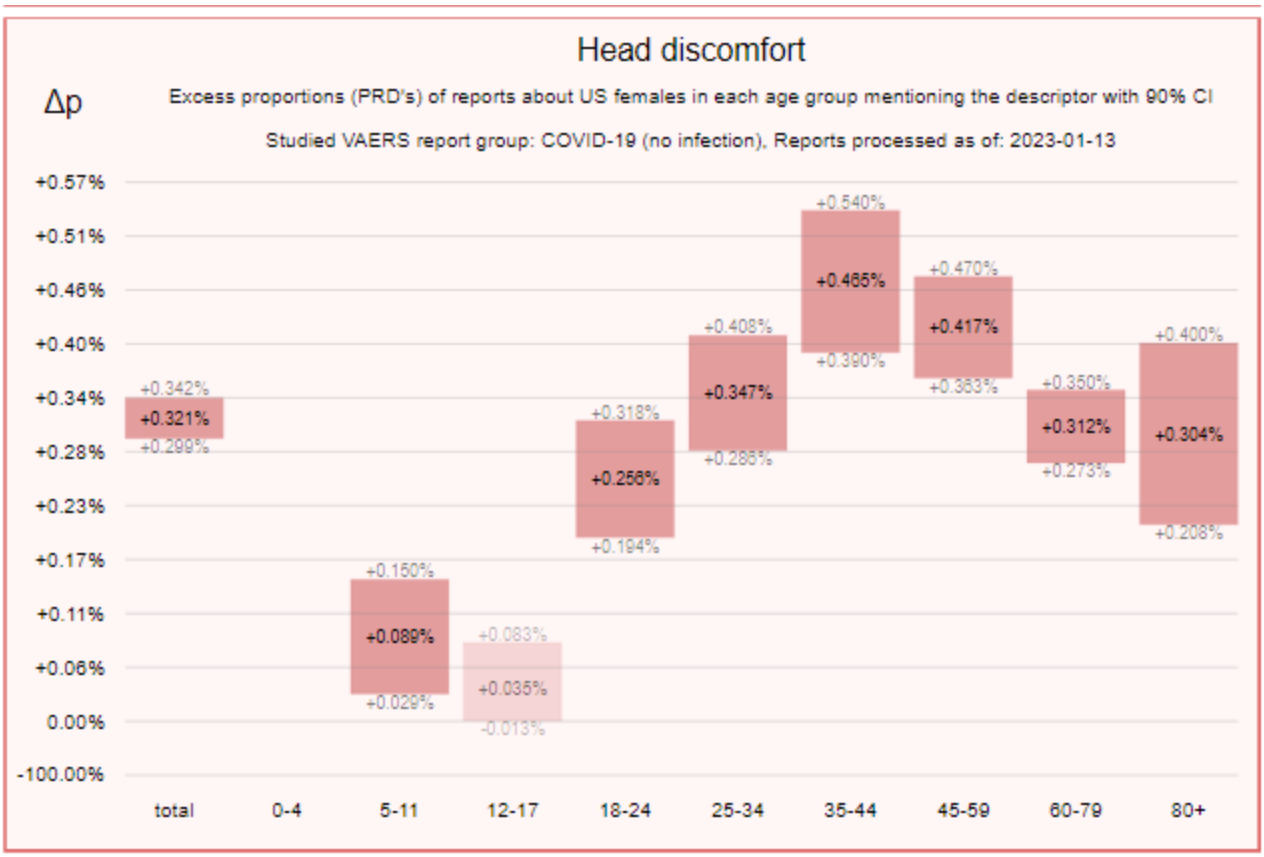

Migraine
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.72%
+1.55%
+1.38%
+1.20%
+1.03%
+0.86%
+0.69%
+0.52%
+0.34%
+0.17%
0.00%
-100.00%
+0.727%
+0.696%
+0.664%
+0.327%
+0.193%
+0.059%
+0.105%
+0.037%
-0.031%
+1.209%
+1.075%
+0.942%
+1.388%
+1.262%
+1.138%
+1.321%
+1.196%
+1.072%
+0.997%
+0.917%
+0.837%
+0.517%
+0.472%
+0.428%
+0.177%
+0.122%
+0.067%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Migraine
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.72%
+1.55%
+1.38%
+1.20%
+1.03%
+0.86%
+0.69%
+0.52%
+0.34%
+0.17%
0.00%
-100.00%
+0.917%
+0.876%
+0.834%
+0.471%
+0.257%
+0.043%
+0.162%
+0.062%
-0.039%
+1.450%
+1.275%
+1.101%
+1.631%
+1.475%
+1.319%
+1.616%
+1.459%
+1.303%
+1.235%
+1.136%
+1.036%
+0.649%
+0.592%
+0.535%
+0.238%
+0.168%
+0.098%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

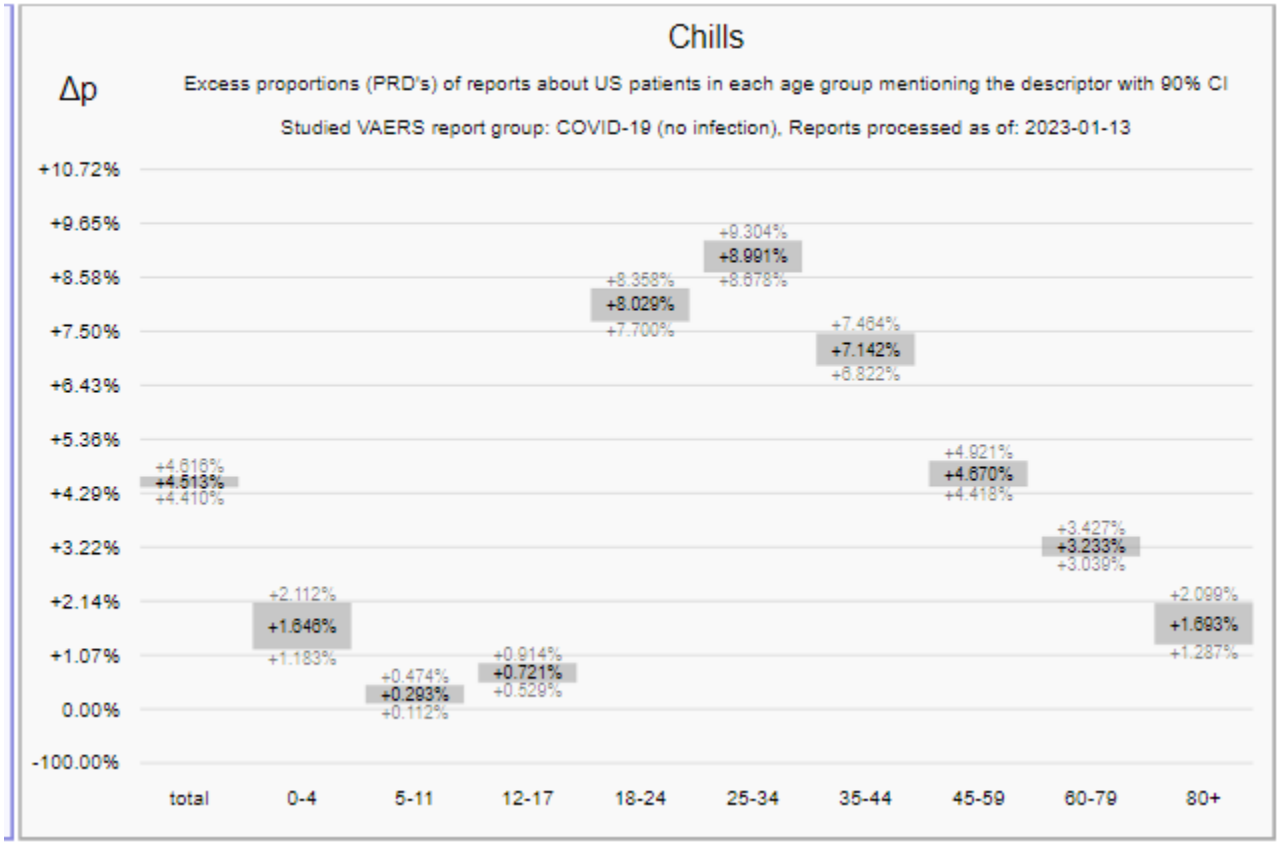
5.2.8.3 Head Discomfort



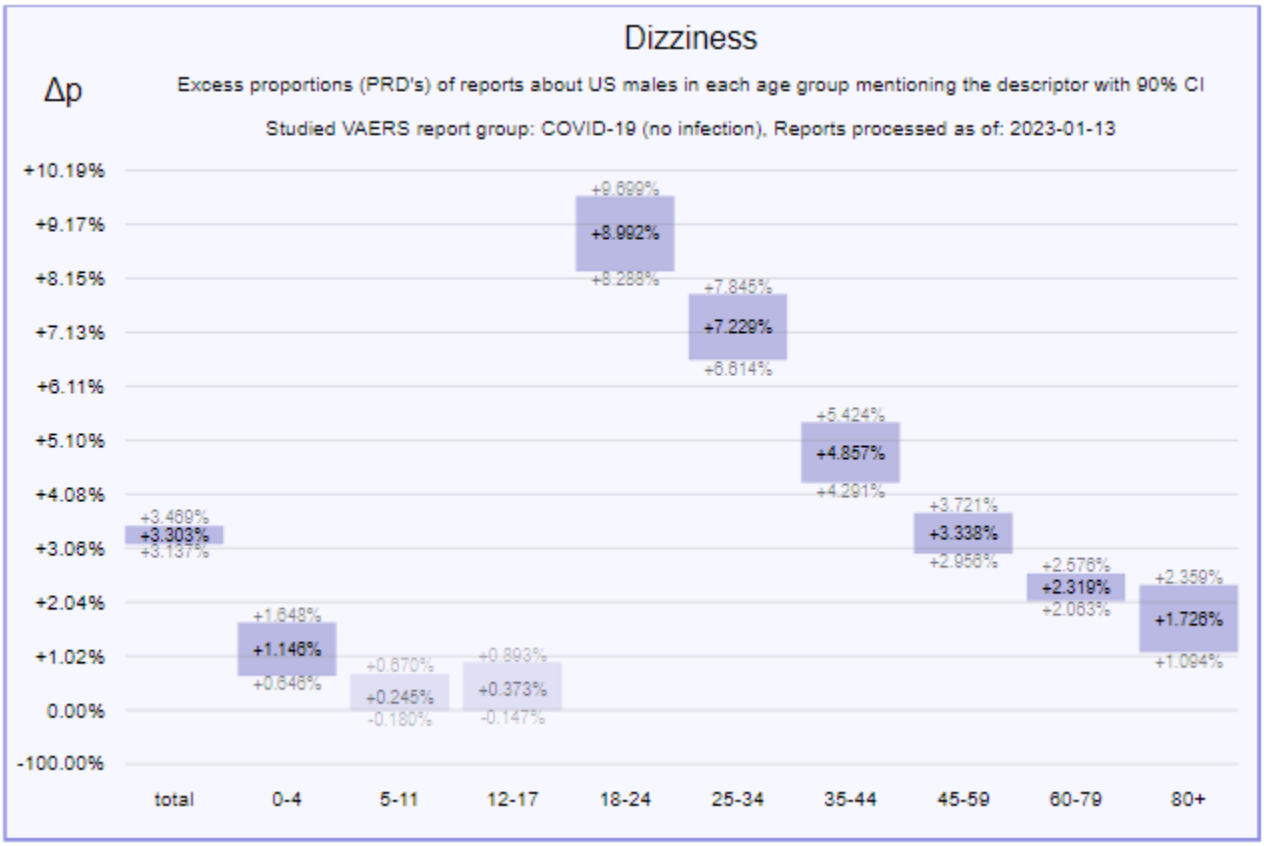

Head discomfort
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.57%
+0.51%
+0.46%
+0.40%
+0.34%
+0.28%
+0.23%
+0.17%
+0.11%
+0.06%
0.00%
-100.00%
+0.297%
+0.278%
+0.260%
+0.091%
+0.055%
+0.018%
+0.042%
+0.007%
-0.026%
+0.252%
+0.204%
+0.156%
+0.384%
+0.332%
+0.280%
+0.498%
+0.437%
+0.376%
+0.425%
+0.380%
+0.335%
+0.309%
+0.278%
+0.247%
+0.313%
+0.239%
+0.165%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

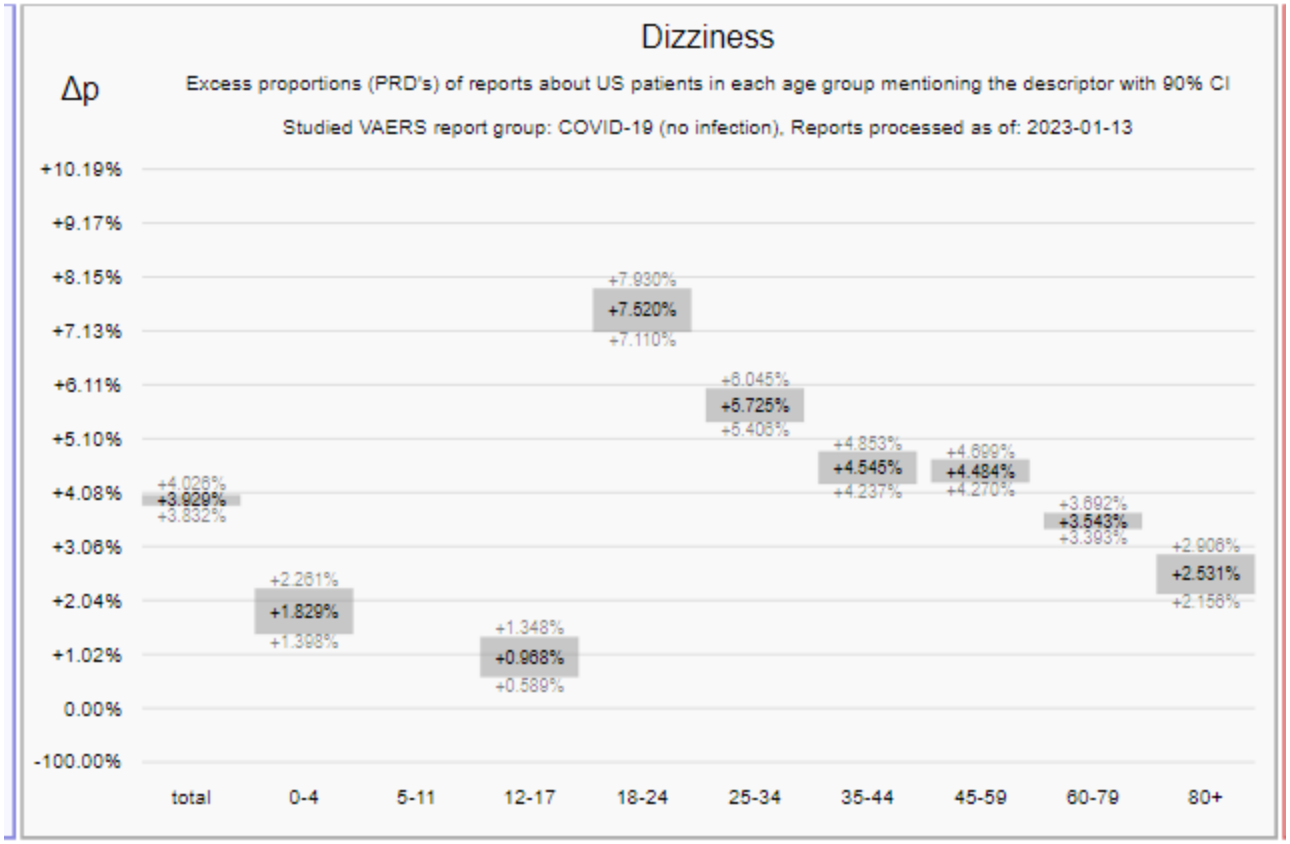

Head discomfort
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.57%
+0.51%
+0.46%
+0.40%
+0.34%
+0.28%
+0.23%
+0.17%
+0.11%
+0.06%
0.00%
-100.00%
+0.342%
+0.321%
+0.299%
+0.150%
+0.089%
+0.029%
+0.083%
+0.035%
-0.013%
+0.318%
+0.256%
+0.194%
+0.408%
+0.347%
+0.286%
+0.540%
+0.465%
+0.390%
+0.470%
+0.417%
+0.363%
+0.350%
+0.312%
+0.273%
+0.400%
+0.304%
+0.208%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

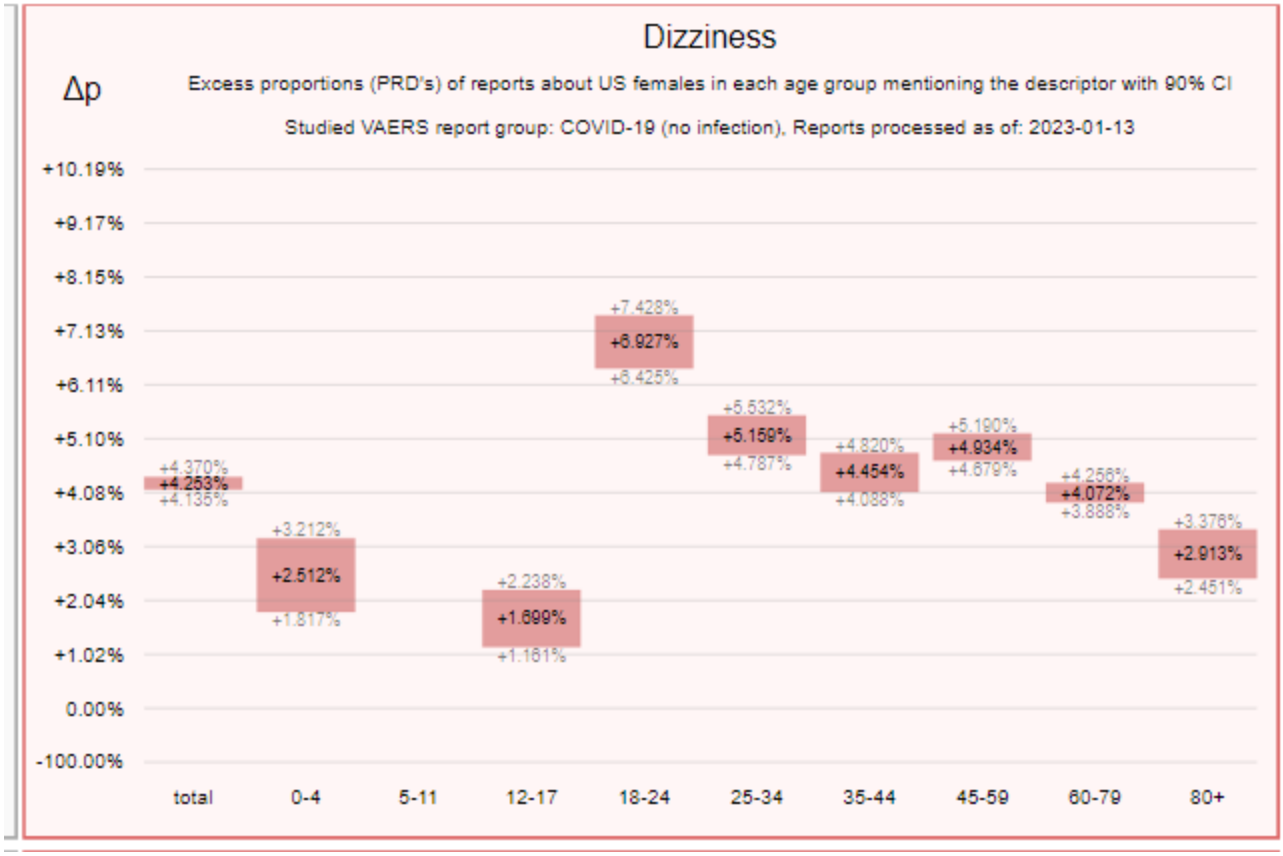
5.2.8.4 Chills


Chills
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+10.72%
+9.65%
+8.58%
+7.50%
+6.43%
+5.36%
+4.29%
+3.22%
+2.14%
+1.07%
0.00%
-100.00%
+4.616% +4.513% +4.410%
+2.112% +1.646% +1.183%
+0.474% +0.293% +0.112%
+0.914% +0.721% +0.529%
+8.358% +8.029% +7.700%
+9.304% +8.991% +8.678%
+7.464% +7.142% +6.822%
+4.921% +4.670% +4.418%
+3.427% +3.233% +3.039%
+2.099% +1.693% +1.287%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

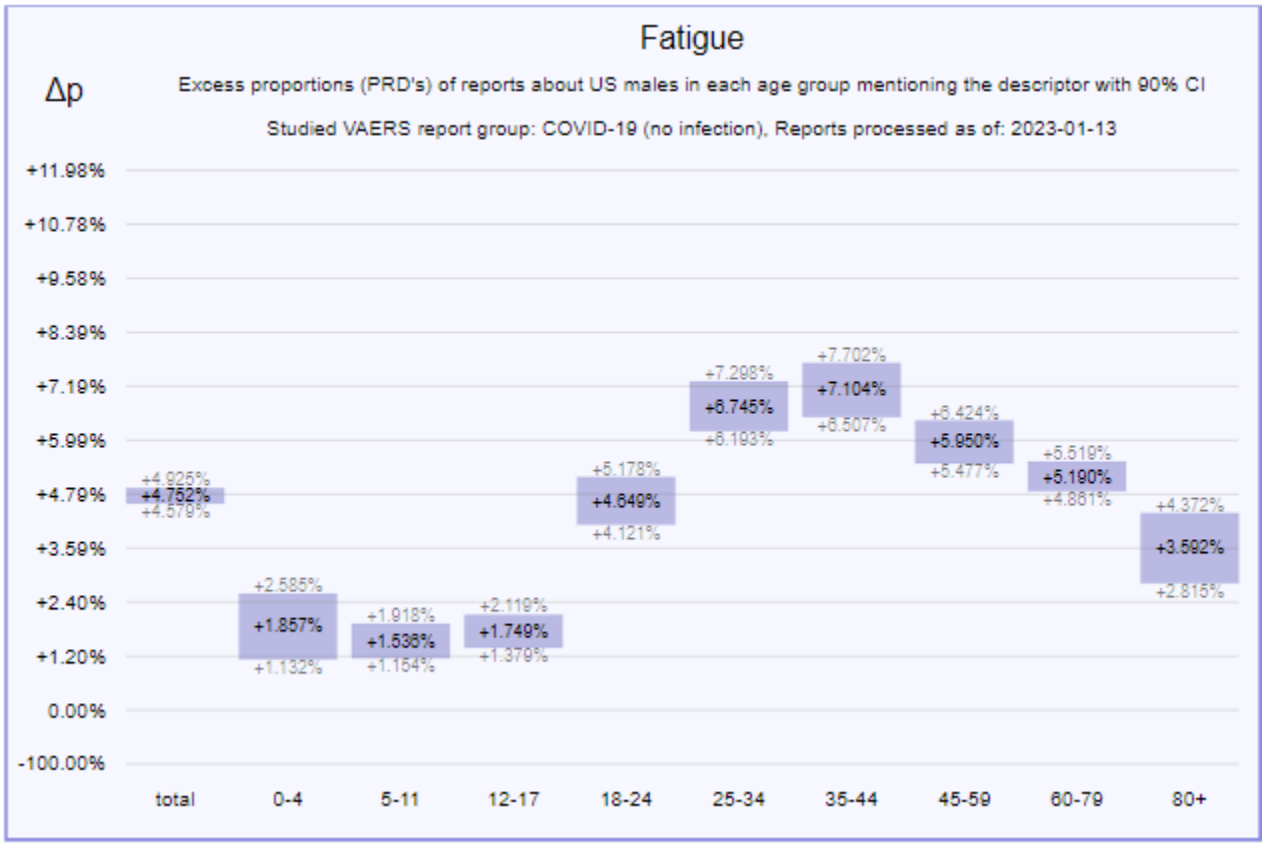
5.2.8.5 Dizziness

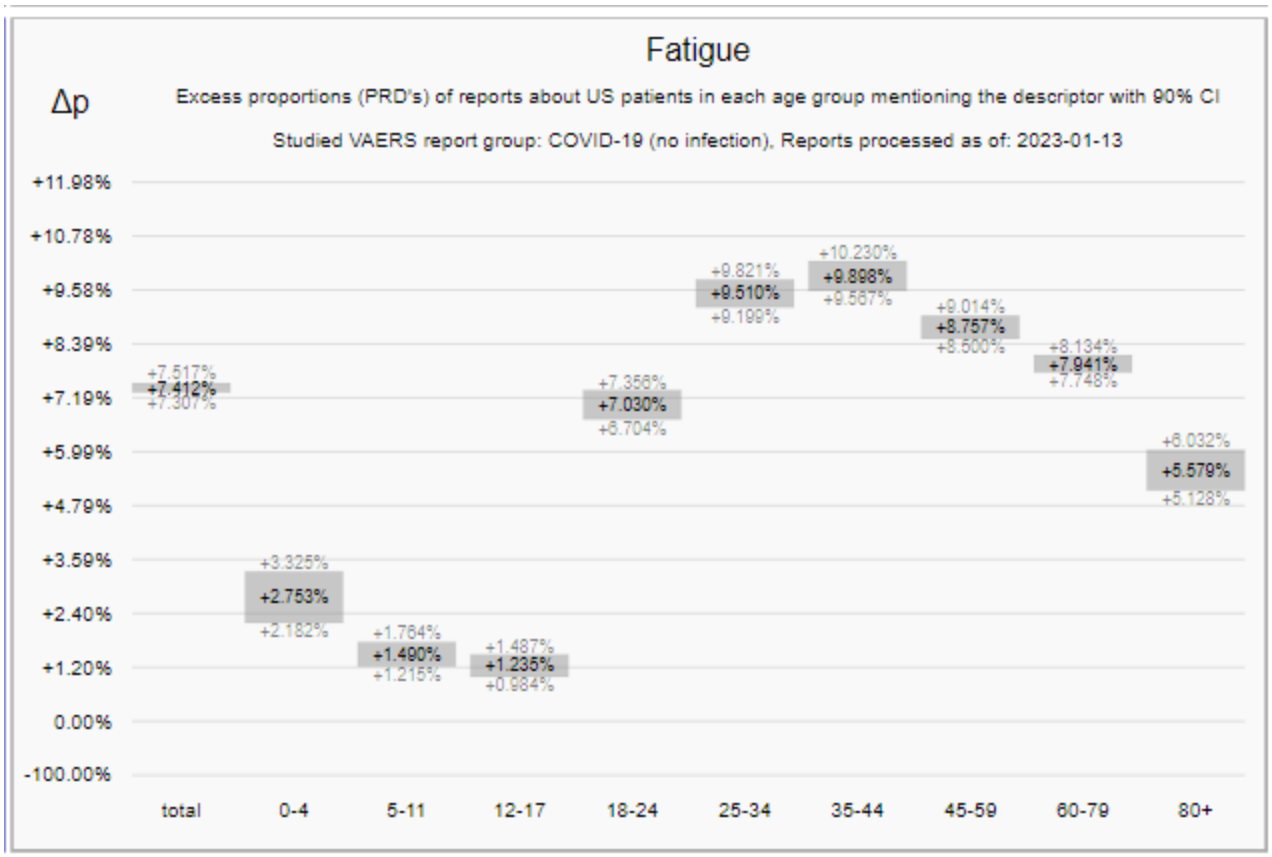


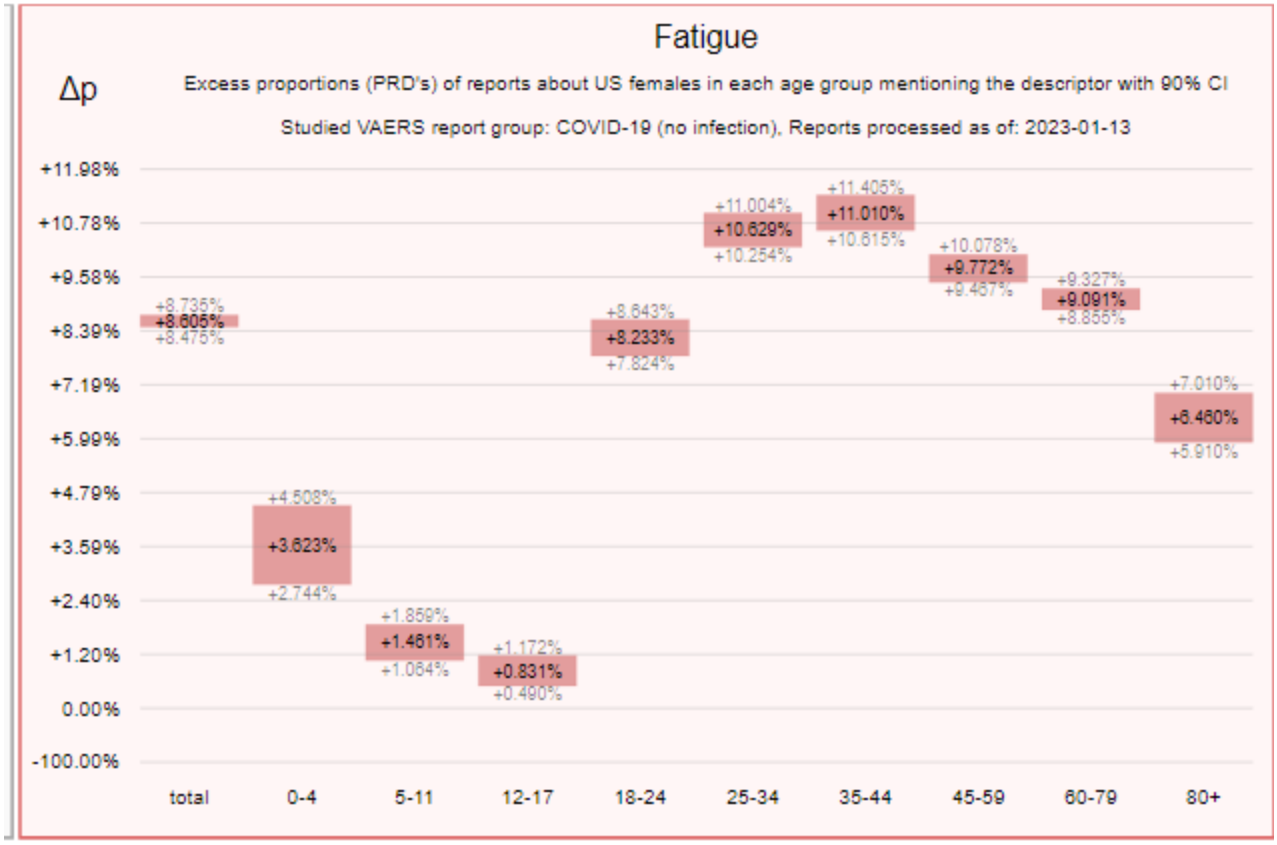

Dizziness
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+10.19%
+9.17%
+8.15%
+7.13%
+6.11%
+5.10%
+4.08%
+3.06%
+2.04%
+1.02%
0.00%
-100.00%
+4.026%
+3.929%
+3.832%
+2.261%
+1.829%
+1.398%
+1.348%
+0.968%
+0.589%
+7.930%
+7.520%
+7.110%
+6.045%
+5.725%
+5.406%
+4.853%
+4.545%
+4.237%
+4.699%
+4.484%
+4.270%
+3.692%
+3.543%
+3.393%
+2.906%
+2.531%
+2.156%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Dizziness
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+10.19%
+9.17%
+8.15%
+7.13%
+6.11%
+5.10%
+4.08%
+3.06%
+2.04%
+1.02%
0.00%
-100.00%
+4.370%
+4.253%
+4.135%
+3.212%
+2.512%
+1.817%
+2.238%
+1.699%
+1.161%
+7.428%
+6.927%
+6.425%
+5.532%
+5.159%
+4.787%
+4.820%
+4.454%
+4.088%
+5.190%
+4.934%
+4.679%
+4.256%
+4.072%
+3.888%
+3.376%
+2.913%
+2.451%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

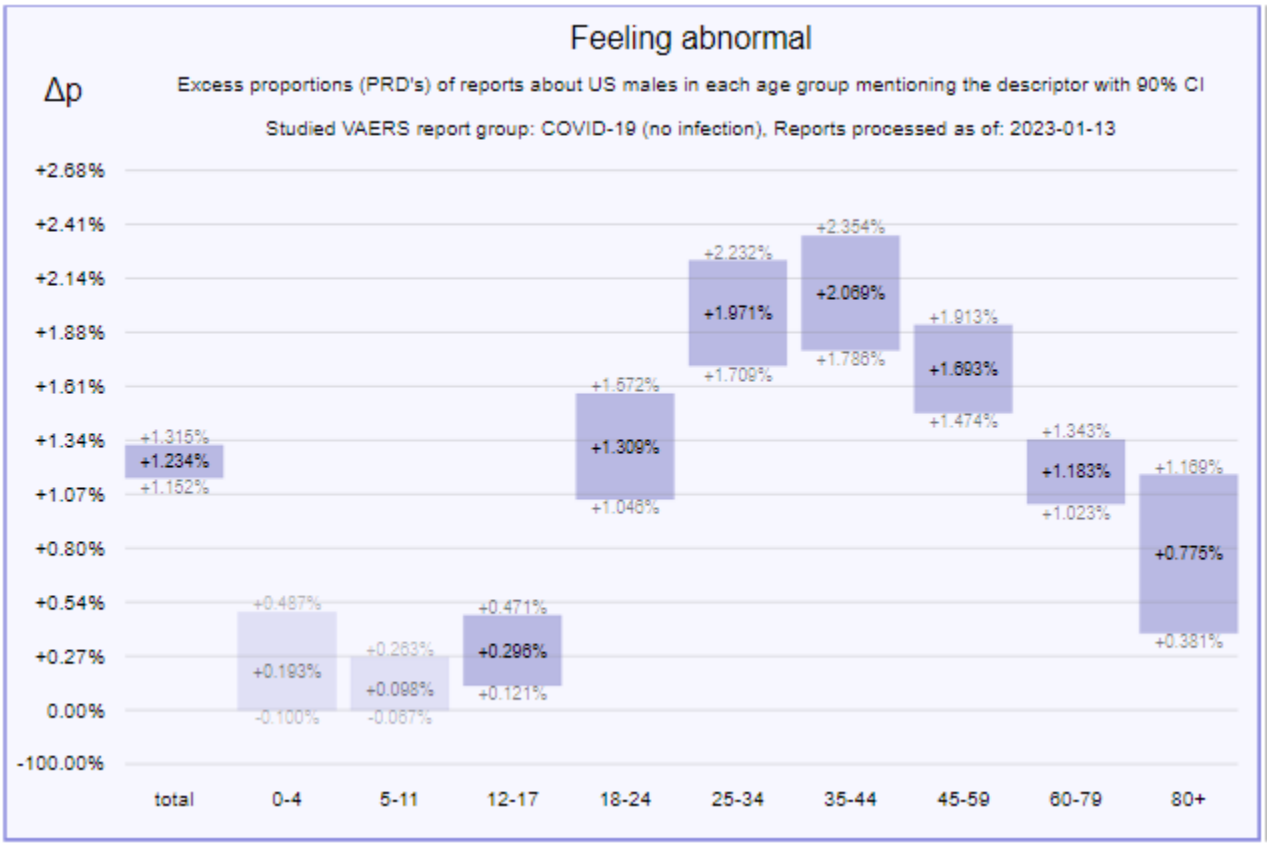
5.2.8.6 Fatigue

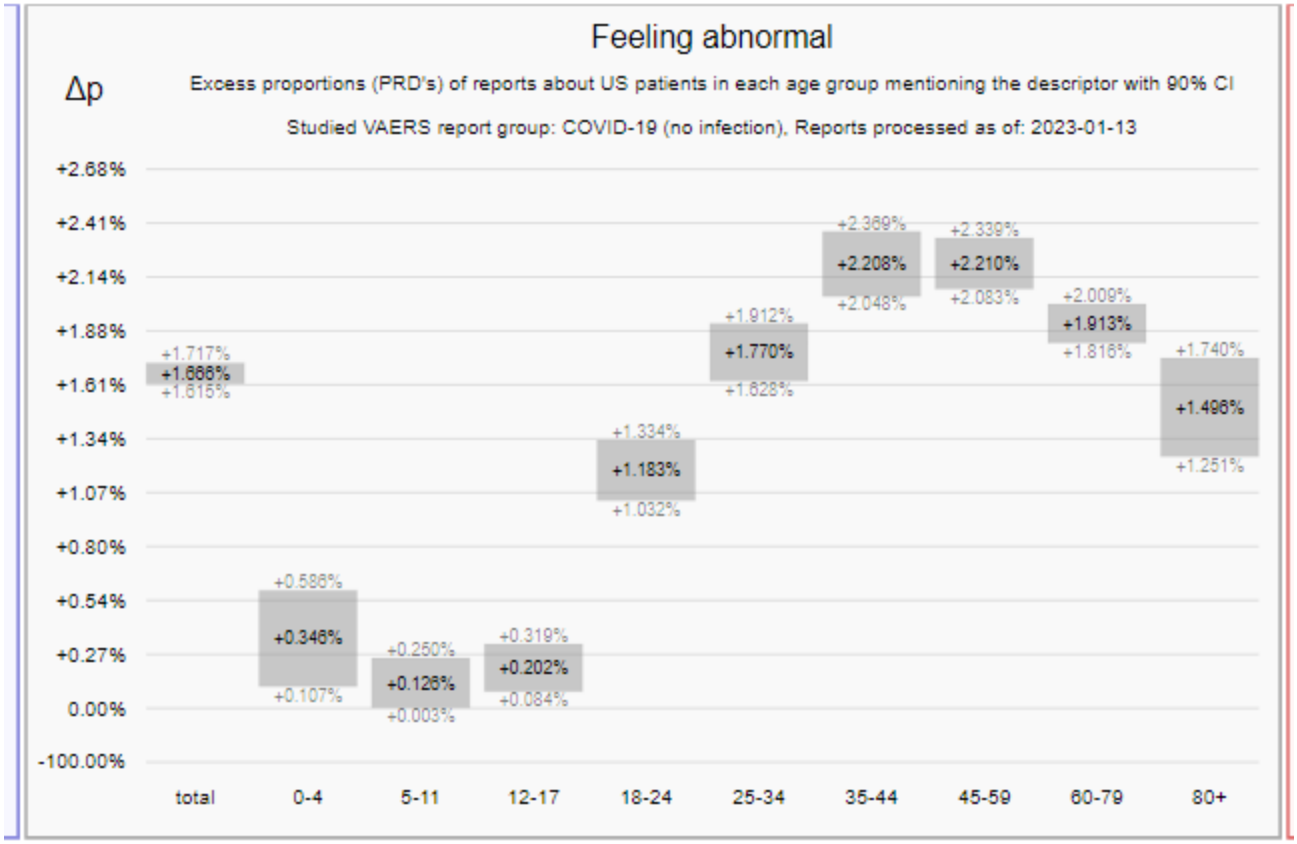


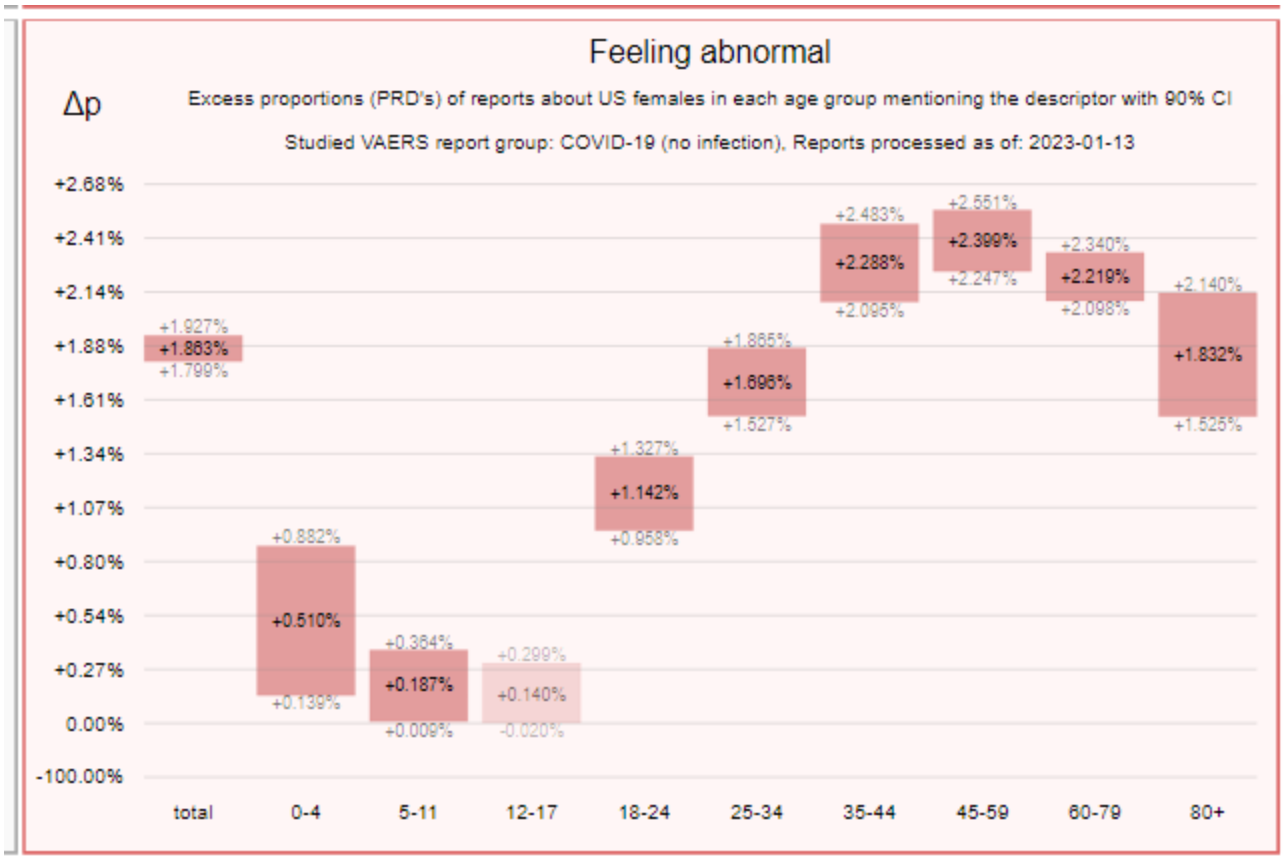

Fatigue
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+11.98%
+10.78%
+9.58%
+8.39%
+7.19%
+5.99%
+4.79%
+3.59%
+2.40%
+1.20%
0.00%
-100.00%
+7.517%
+7.412%
+7.307%
+3.325%
+2.753%
+2.182%
+1.764%
+1.490%
+1.215%
+1.487%
+1.235%
+0.984%
+7.356%
+7.030%
+6.704%
+9.821%
+9.510%
+9.199%
+10.230%
+9.898%
+9.567%
+9.014%
+8.757%
+8.500%
+8.134%
+7.941%
+7.748%
+6.032%
+5.579%
+5.128%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Fatigue
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+11.98%
+10.78%
+9.58%
+8.39%
+7.19%
+5.99%
+4.79%
+3.59%
+2.40%
+1.20%
0.00%
-100.00%
+8.735%
+8.605%
+8.475%
+4.508%
+3.623%
+2.744%
+1.859%
+1.461%
+1.064%
+1.172%
+0.831%
+0.490%
+8.643%
+8.233%
+7.824%
+11.004%
+10.629%
+10.254%
+11.405%
+11.010%
+10.615%
+10.078%
+9.772%
+9.467%
+9.327%
+9.091%
+8.855%
+7.010%
+6.460%
+5.910%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

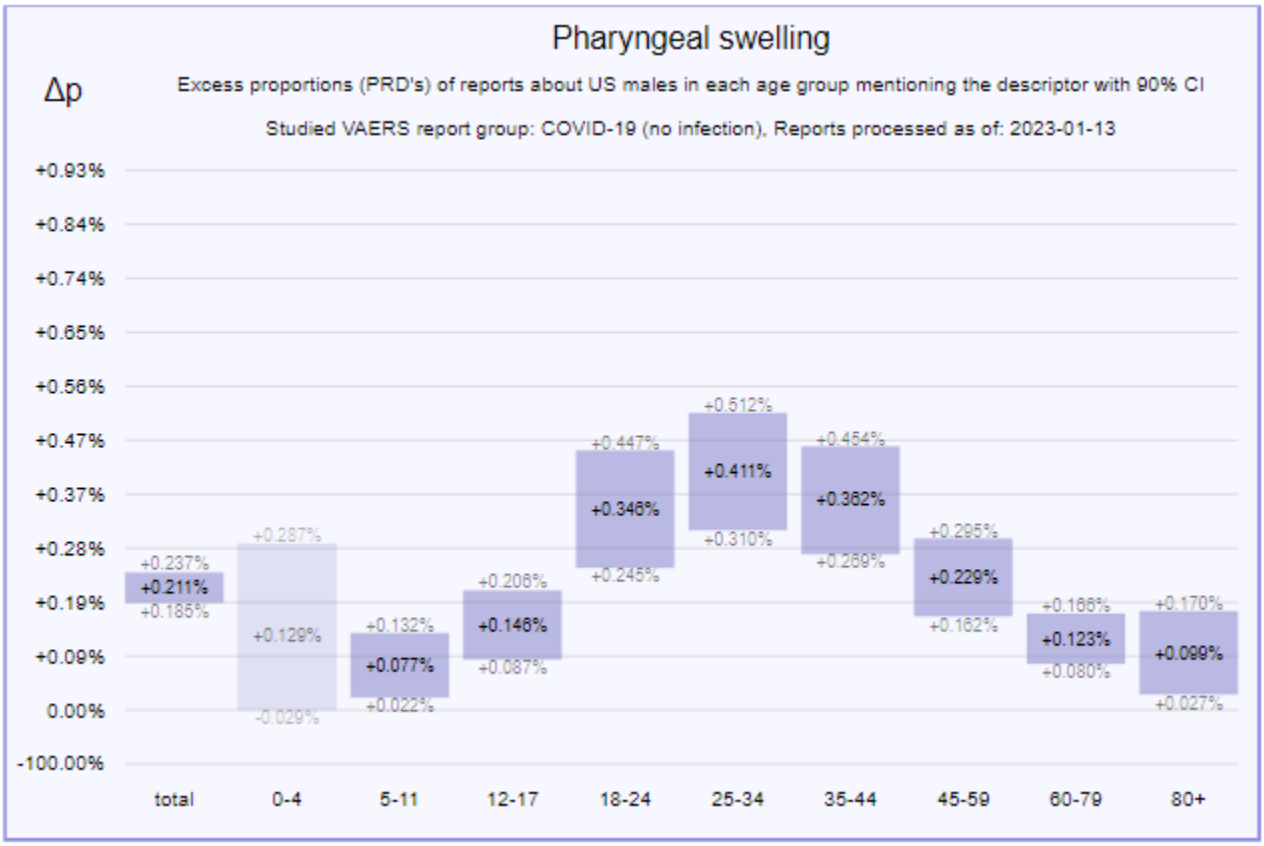
5.2.8.7 Feeling Abnormal

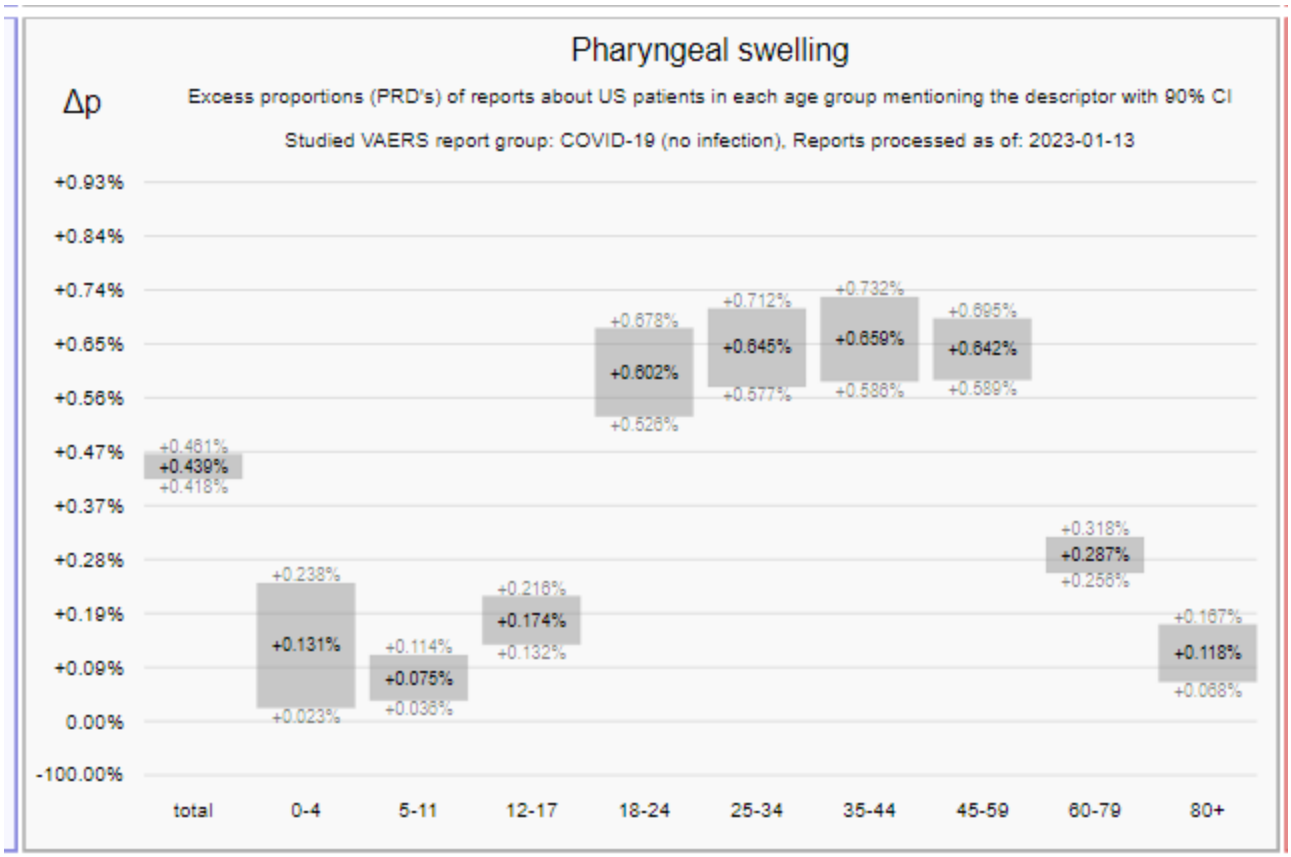


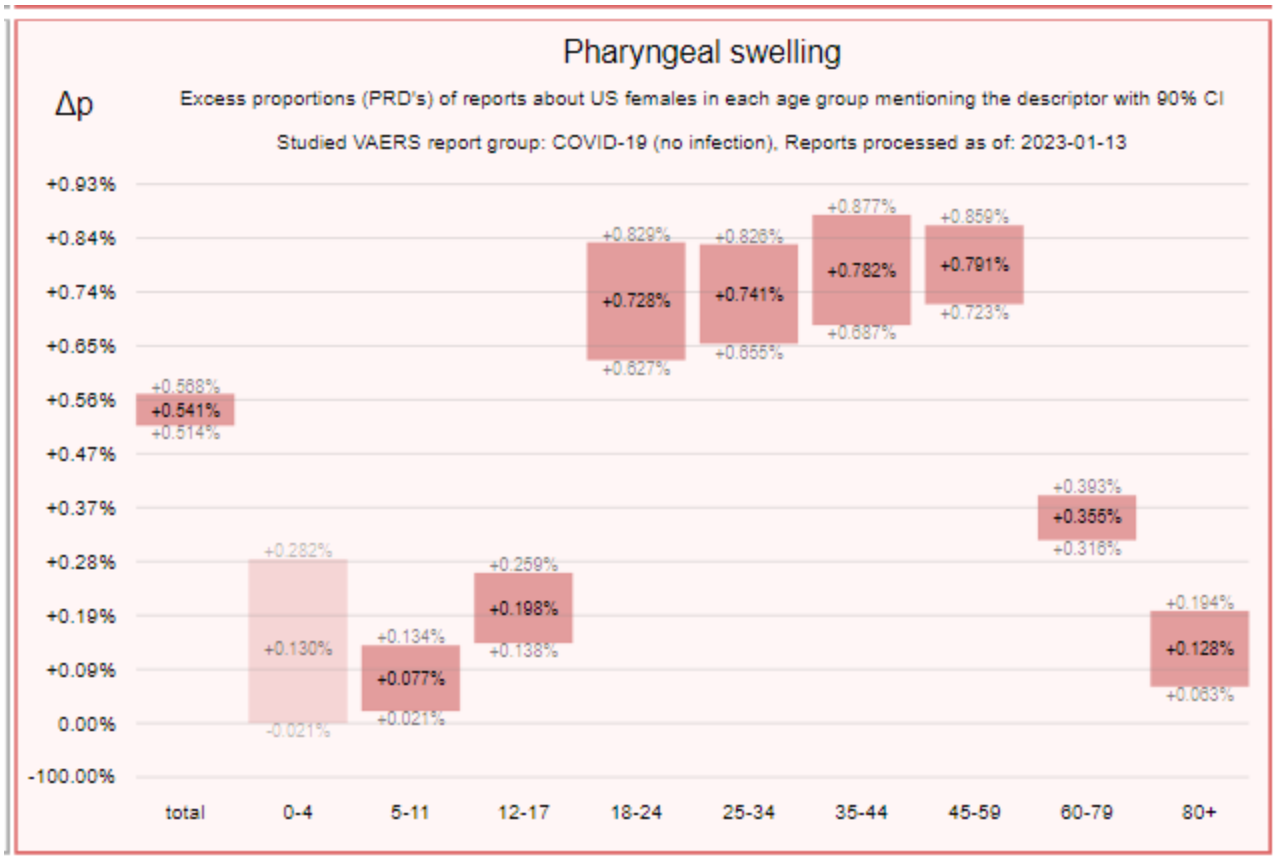

Feeling abnormal
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.68%
+2.41%
+2.14%
+1.88%
+1.61%
+1.34%
+1.07%
+0.80%
+0.54%
+0.27%
0.00%
-100.00%
+1.717%
+1.666%
+1.615%
+0.586%
+0.346%
+0.107%
+0.260%
+0.126%
+0.003%
+0.319%
+0.202%
+0.084%
+1.334%
+1.183%
+1.032%
+1.912%
+1.770%
+1.628%
+2.369%
+2.208%
+2.048%
+2.339%
+2.210%
+2.083%
+2.009%
+1.913%
+1.816%
+1.740%
+1.496%
+1.251%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Feeling abnormal
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+2.68%
+2.41%
+2.14%
+1.88%
+1.61%
+1.34%
+1.07%
+0.80%
+0.54%
+0.27%
0.00%
-100.00%
+1.927%
+1.863%
+1.799%
+0.882%
+0.510%
+0.139%
+0.364%
+0.187%
+0.009%
+0.299%
+0.140%
-0.020%
+1.327%
+1.142%
+0.958%
+1.865%
+1.696%
+1.527%
+2.483%
+2.288%
+2.095%
+2.551%
+2.399%
+2.247%
+2.340%
+2.219%
+2.098%
+2.140%
+1.832%
+1.525%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

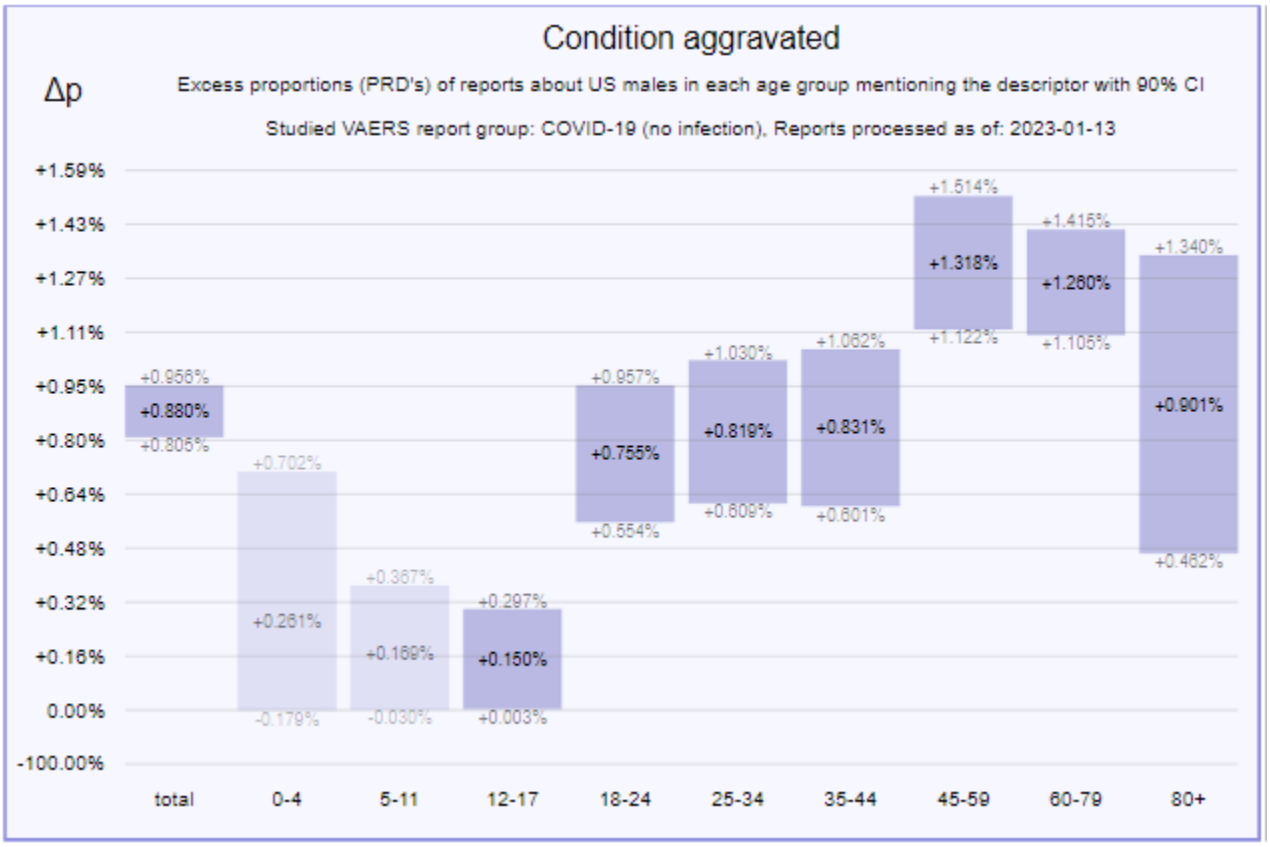
5.2.8.8 Pharyngeal Swelling

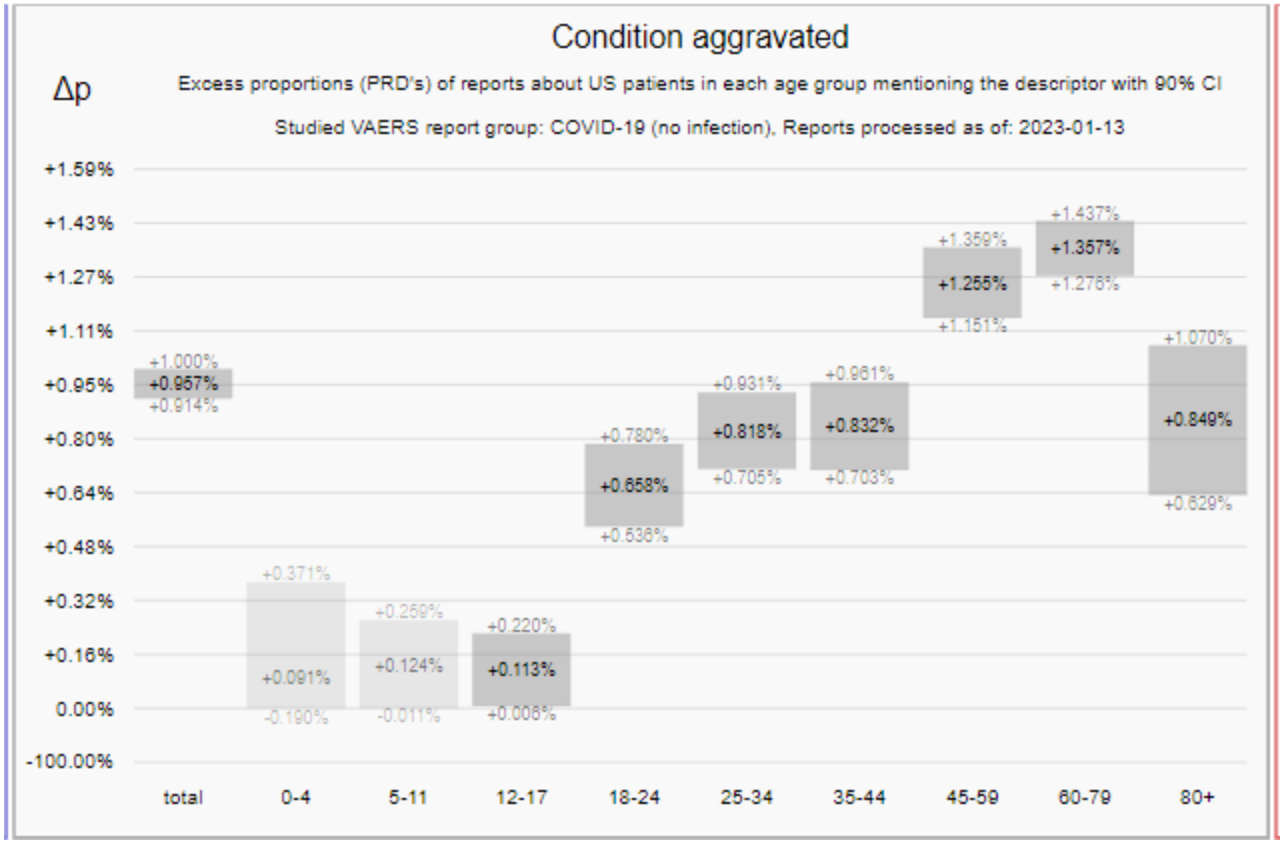


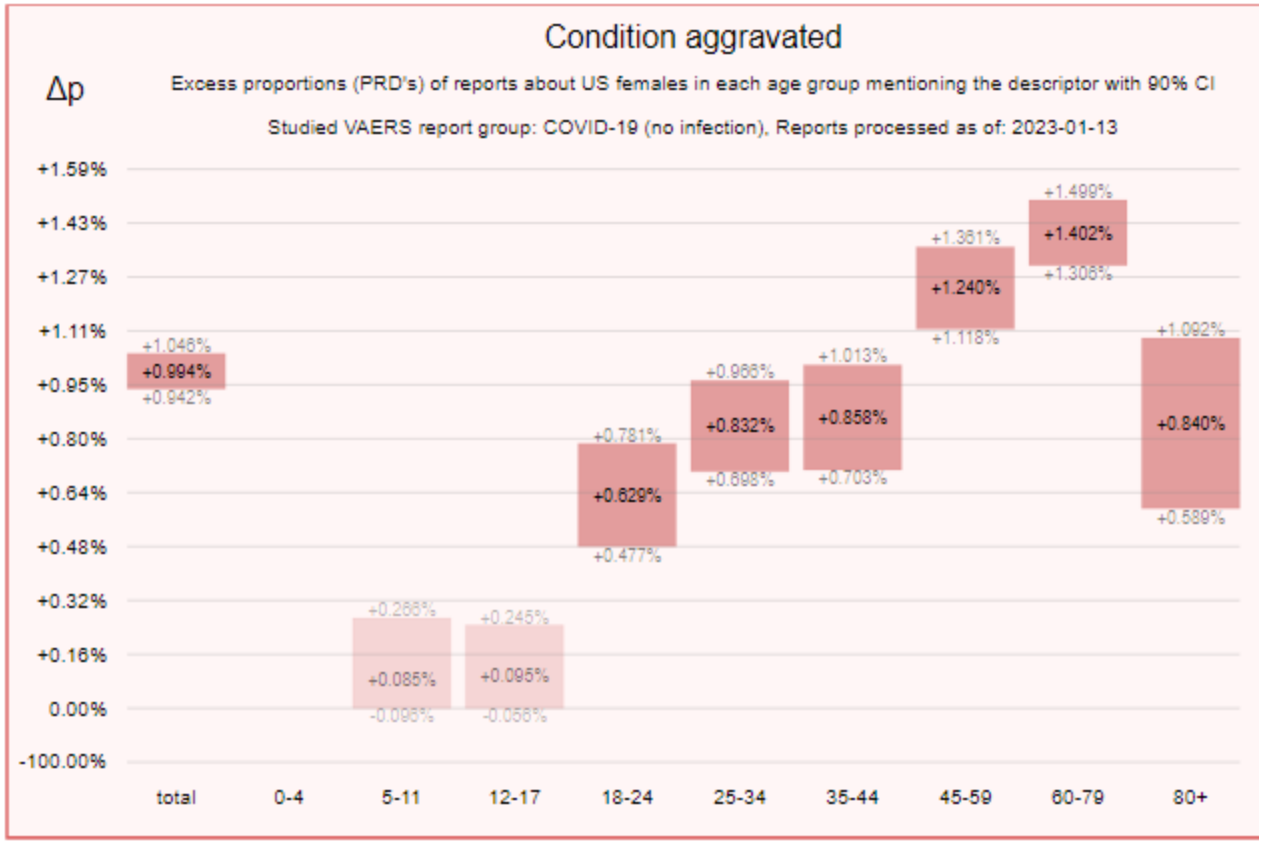

Pharyngeal swelling
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.93%
+0.84%
+0.74%
+0.65%
+0.56%
+0.47%
+0.37%
+0.28%
+0.19%
+0.09%
0.00%
-100.00%
+0.461%
+0.439%
+0.418%
+0.238%
+0.131%
+0.023%
+0.114%
+0.075%
+0.036%
+0.216%
+0.174%
+0.132%
+0.678%
+0.602%
+0.526%
+0.712%
+0.645%
+0.577%
+0.732%
+0.659%
+0.586%
+0.695%
+0.642%
+0.589%
+0.318%
+0.287%
+0.256%
+0.167%
+0.118%
+0.068%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Pharyngeal swelling
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.93%
+0.84%
+0.74%
+0.65%
+0.56%
+0.47%
+0.37%
+0.28%
+0.19%
+0.09%
0.00%
-100.00%
+0.568%
+0.541%
+0.514%
+0.282%
+0.130%
-0.021%
+0.134%
+0.077%
+0.021%
+0.259%
+0.198%
+0.138%
+0.829%
+0.728%
+0.627%
+0.826%
+0.741%
+0.655%
+0.877%
+0.782%
+0.687%
+0.859%
+0.791%
+0.723%
+0.393%
+0.355%
+0.316%
+0.194%
+0.128%
+0.063%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

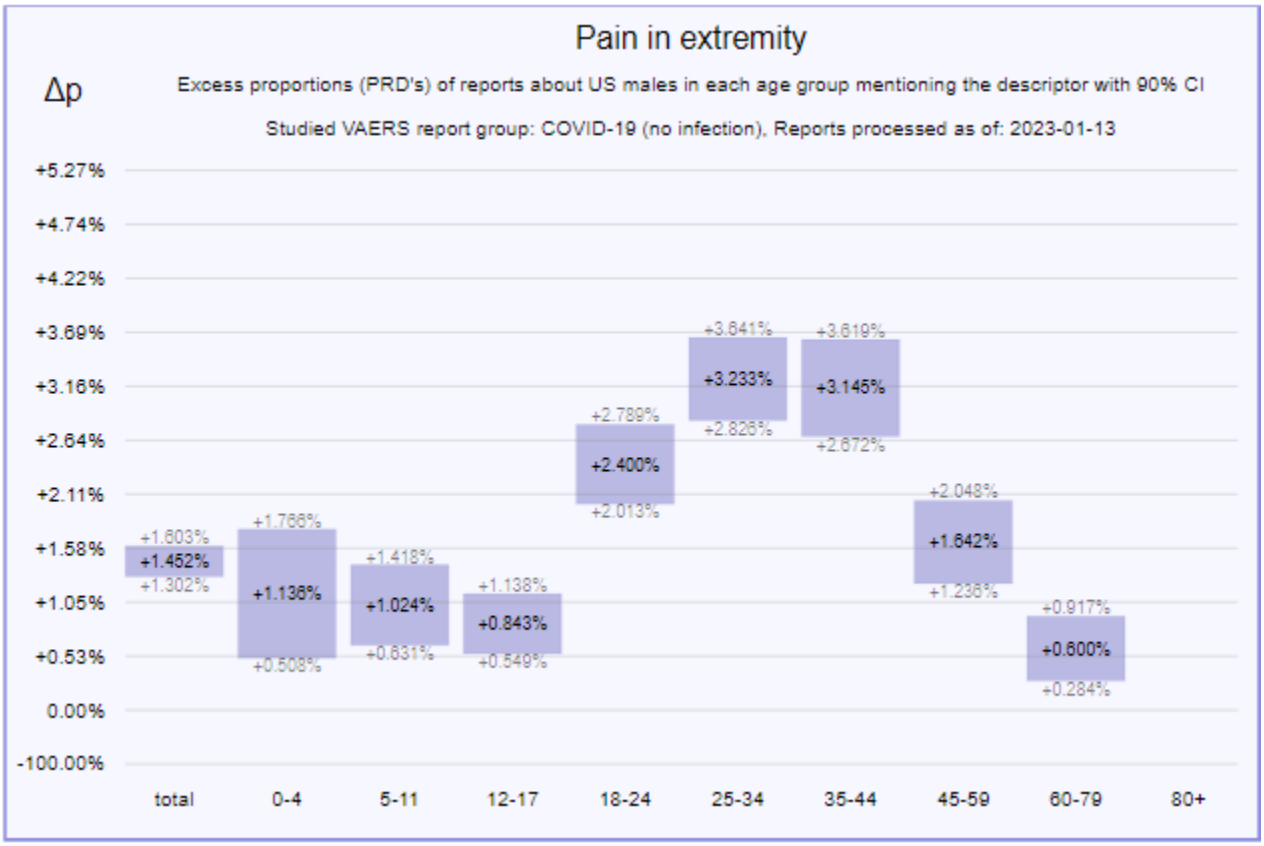
5.2.8.9 Condition Aggravated

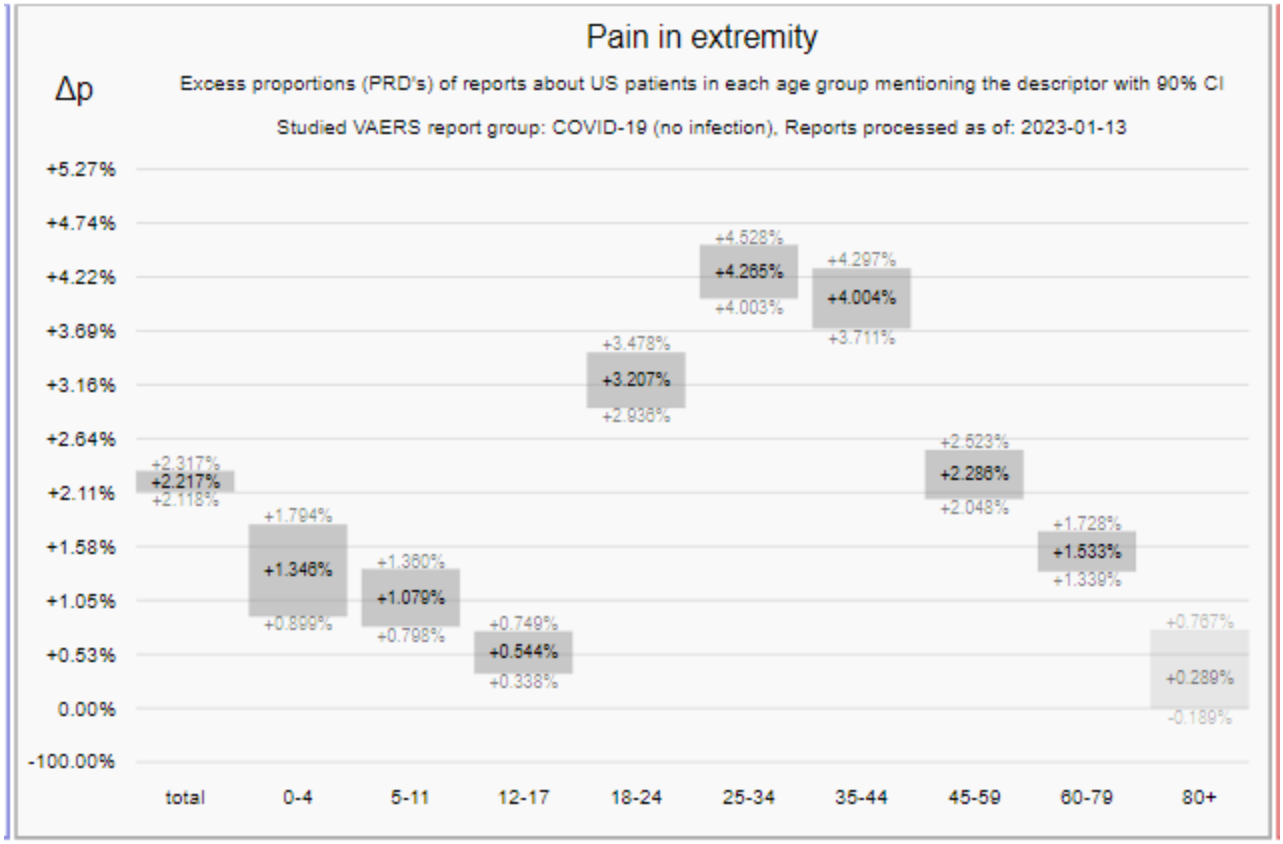


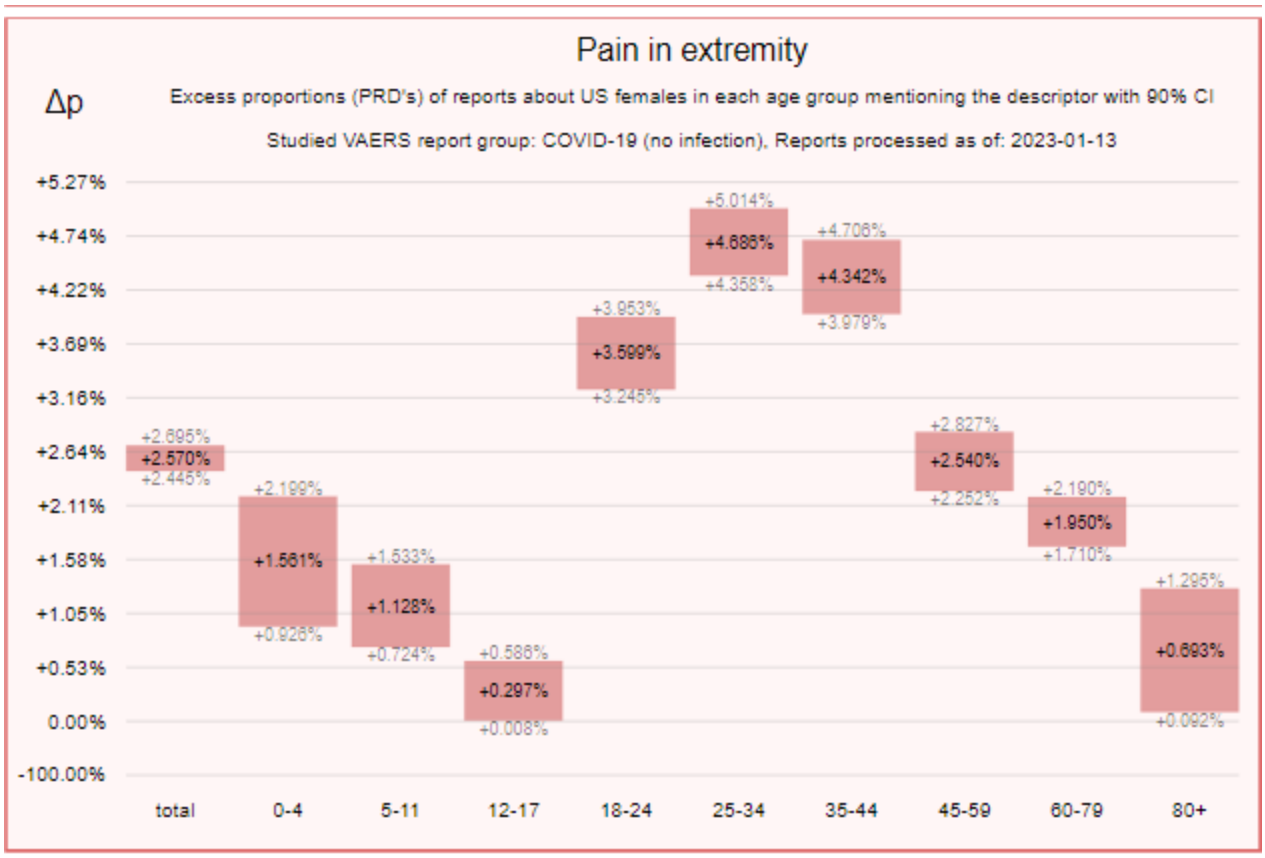

Condition aggravated
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.59%
+1.43%
+1.27%
+1.11%
+0.95%
+0.80%
+0.64%
+0.48%
+0.32%
+0.16%
0.00%
-100.00%
+1.000%
+0.957%
+0.914%
+0.371%
+0.091%
-0.190%
+0.259%
+0.124%
-0.011%
+0.220%
+0.113%
+0.006%
+0.780%
+0.658%
+0.536%
+0.931%
+0.818%
+0.705%
+0.961%
+0.832%
+0.703%
+1.359%
+1.255%
+1.151%
+1.437%
+1.357%
+1.276%
+1.070%
+0.849%
+0.629%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Condition aggravated
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+1.59%
+1.43%
+1.27%
+1.11%
+0.95%
+0.80%
+0.64%
+0.48%
+0.32%
+0.16%
0.00%
-100.00%
+1.046%
+0.994%
+0.942%
+0.266%
+0.085%
-0.096%
+0.245%
+0.095%
-0.056%
+0.781%
+0.629%
+0.477%
+0.966%
+0.832%
+0.698%
+1.013%
+0.858%
+0.703%
+1.361%
+1.240%
+1.118%
+1.499%
+1.402%
+1.306%
+1.092%
+0.840%
+0.589%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

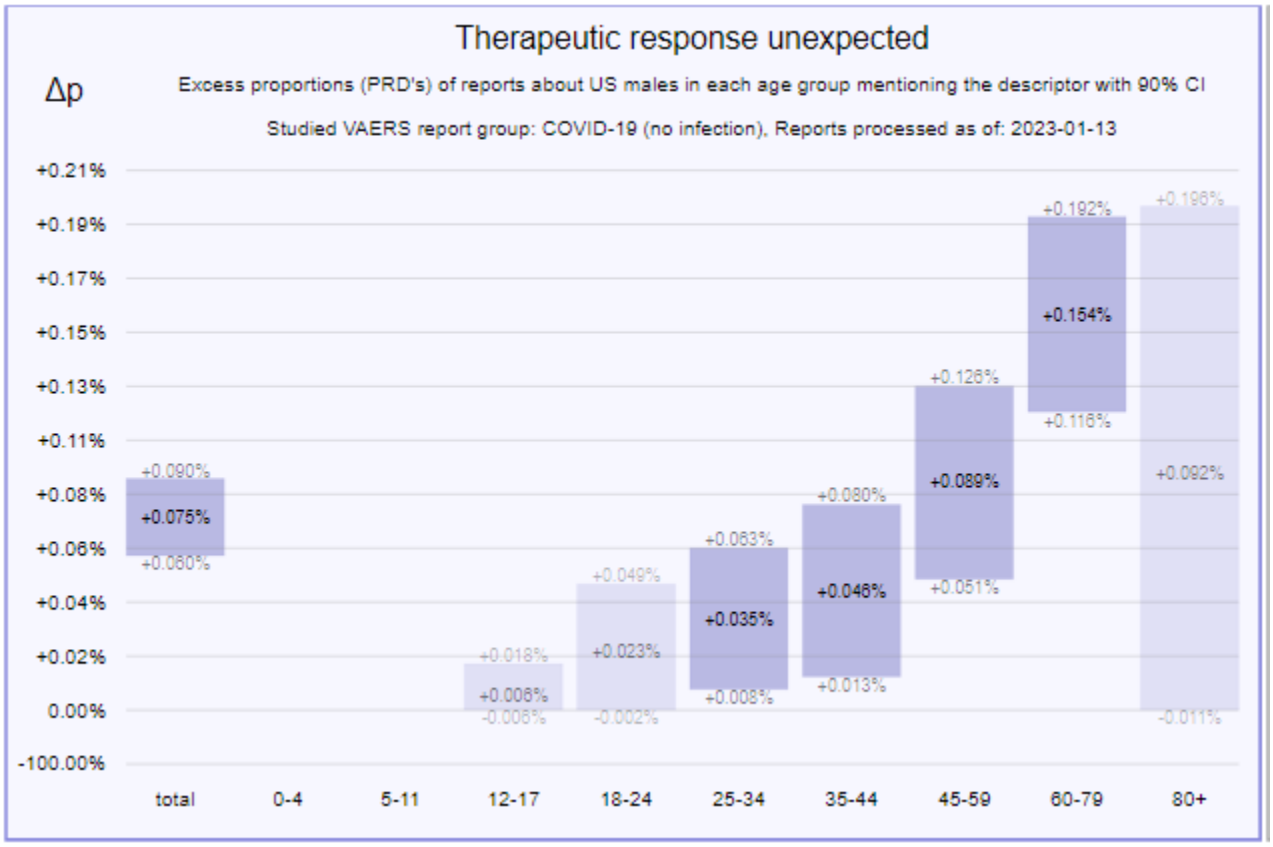
5.2.8.10 Pain in Extremity

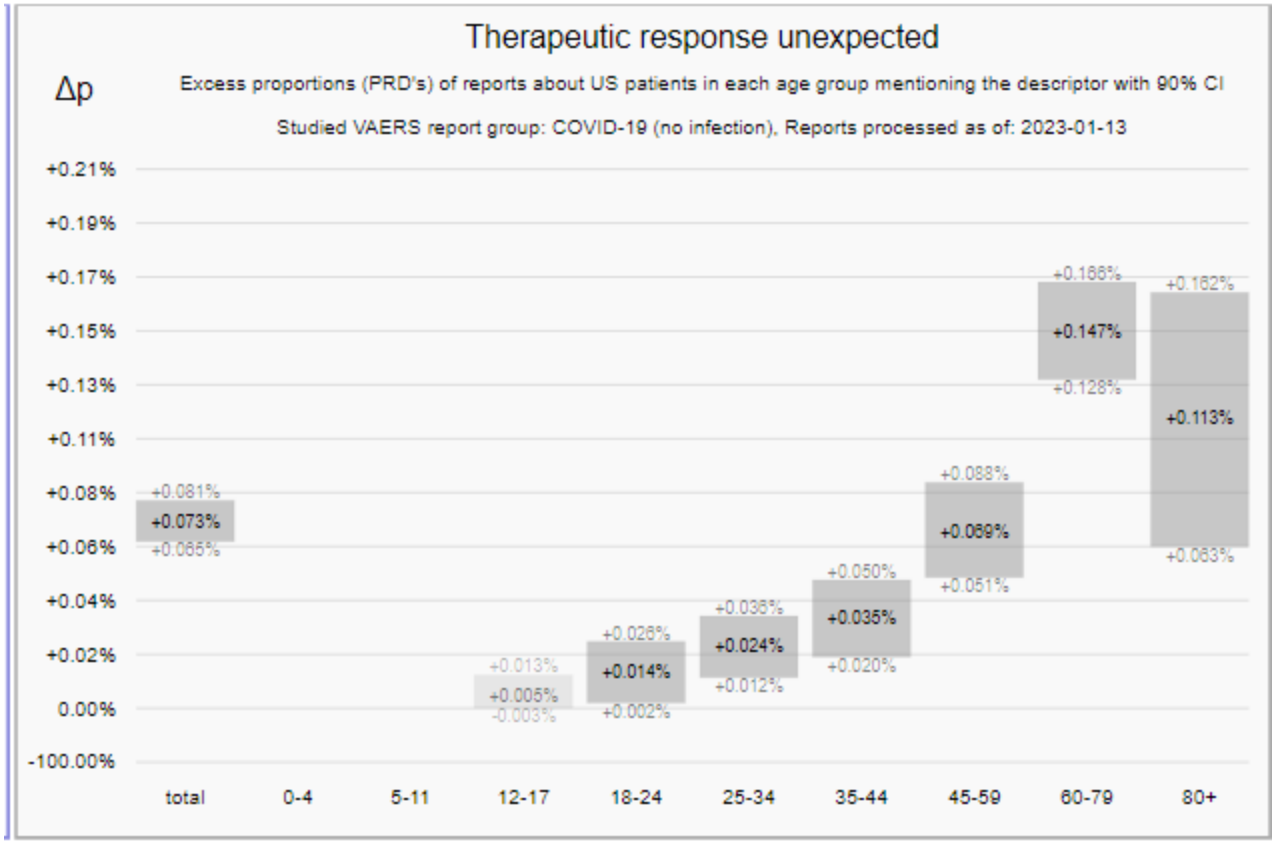


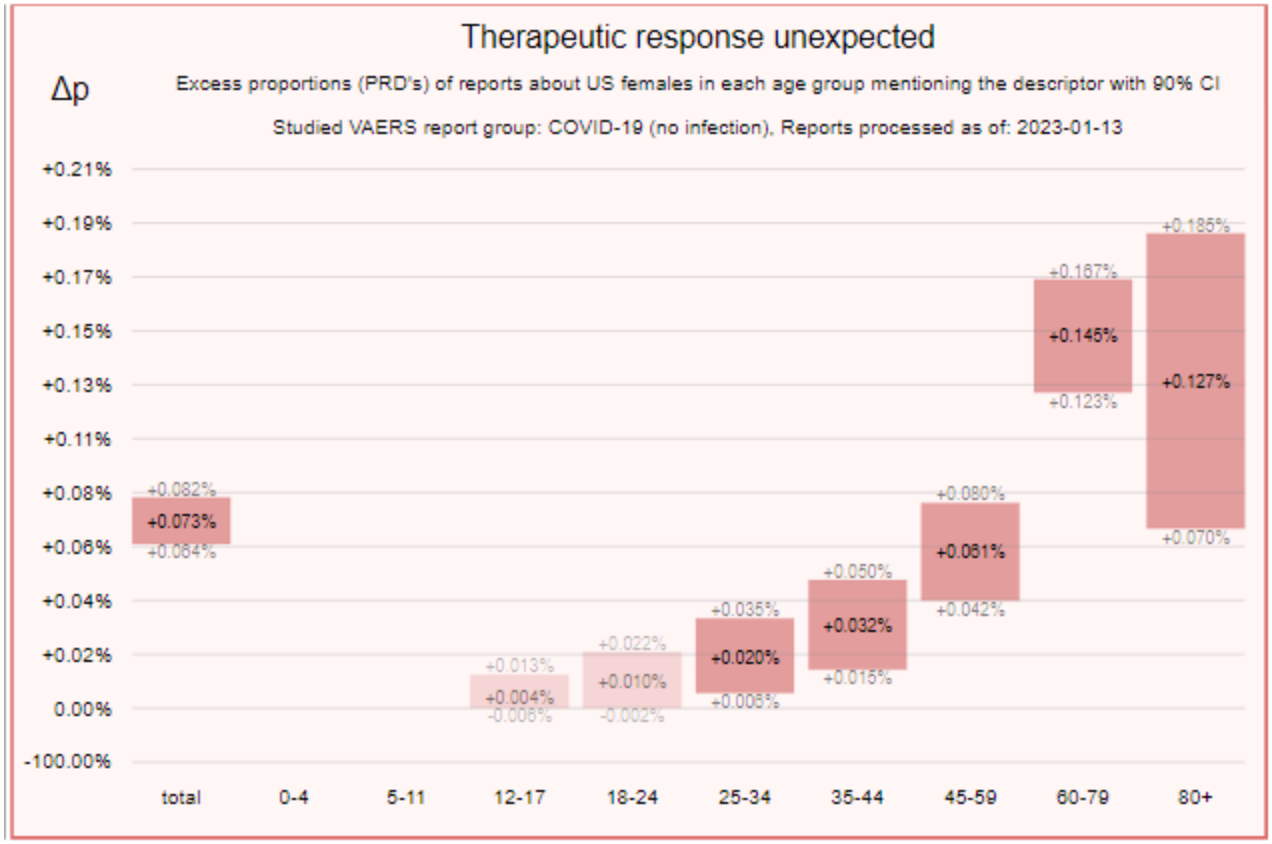

Pain in extremity
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+5.27%
+4.74%
+4.22%
+3.69%
+3.16%
+2.64%
+2.11%
+1.58%
+1.05%
+0.53%
0.00%
-100.00%
+2.317%
+2.217%
+2.118%
+1.794%
+1.346%
+0.899%
+1.360%
+1.079%
+0.798%
+0.749%
+0.544%
+0.338%
+3.478%
+3.207%
+2.936%
+4.528%
+4.265%
+4.003%
+4.297%
+4.004%
+3.711%
+2.523%
+2.286%
+2.048%
+1.728%
+1.533%
+1.339%
+0.767%
+0.289%
-0.189%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Pain in extremity
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+5.27%
+4.74%
+4.22%
+3.69%
+3.16%
+2.64%
+2.11%
+1.58%
+1.05%
+0.53%
0.00%
-100.00%
+2.695%
+2.570%
+2.445%
+2.199%
+1.561%
+0.926%
+1.533%
+1.128%
+0.724%
+0.586%
+0.297%
+0.008%
+3.953%
+3.599%
+3.245%
+5.014%
+4.686%
+4.358%
+4.706%
+4.342%
+3.979%
+2.827%
+2.540%
+2.252%
+2.190%
+1.950%
+1.710%
+1.295%
+0.693%
+0.092%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

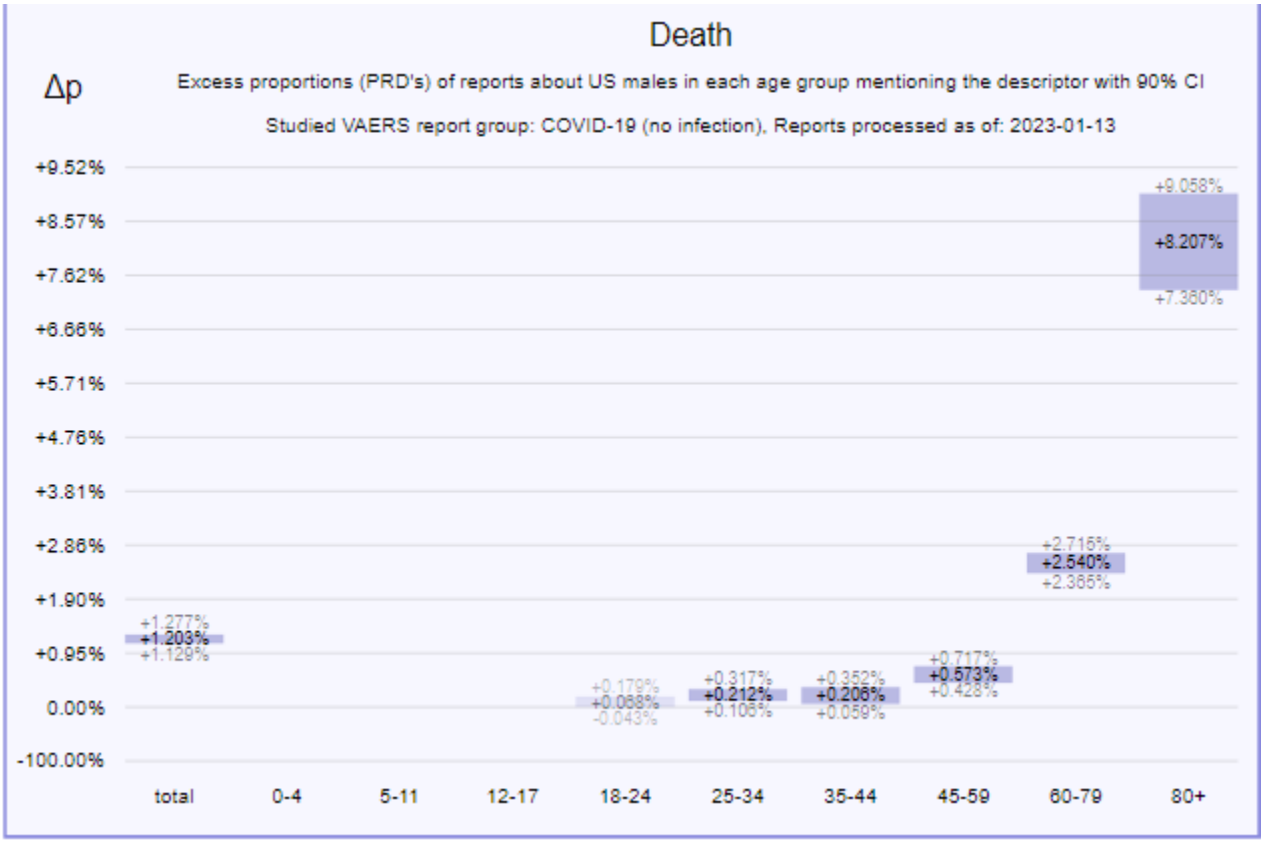
5.2.8.11 Unexpected Therapeutic Response

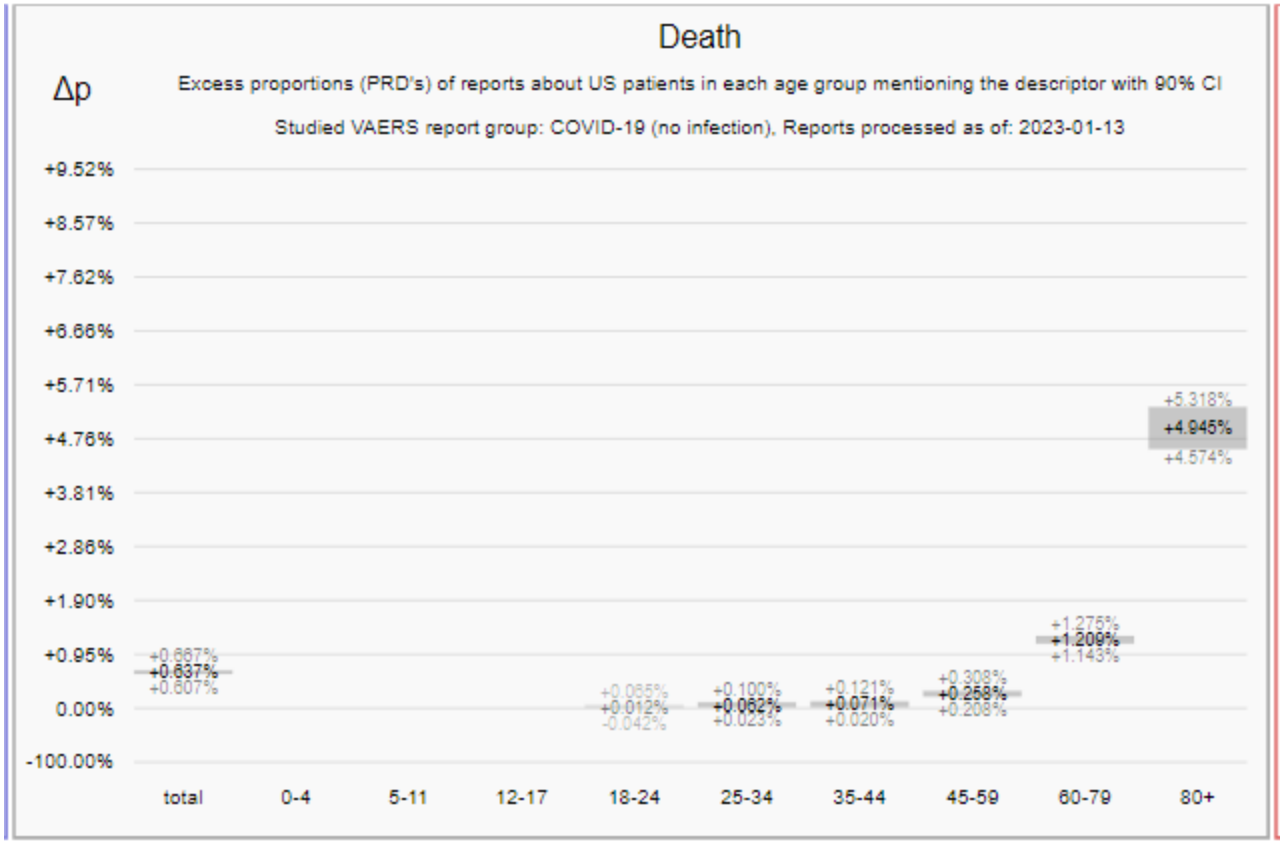



Therapeutic response unexpected
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.21%
+0.19%
+0.17%
+0.15%
+0.13%
+0.11%
+0.08%
+0.06%
+0.04%
+0.02%
0.00%
-100.00%
+0.081%
+0.073%
+0.065%
+0.013%
+0.005%
-0.003%
+0.026%
+0.014%
+0.002%
+0.036%
+0.024%
+0.012%
+0.050%
+0.035%
+0.020%
+0.088%
+0.069%
+0.051%
+0.166%
+0.147%
+0.128%
+0.162%
+0.113%
+0.063%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Therapeutic response unexpected
Δp
Excess proportions (PRD's) of reports about US females in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+0.21%
+0.19%
+0.17%
+0.15%
+0.13%
+0.11%
+0.08%
+0.06%
+0.04%
+0.02%
0.00%
-100.00%
+0.082%
+0.073%
+0.064%
+0.013%
+0.004%
-0.006%
+0.022%
+0.010%
-0.002%
+0.035%
+0.020%
+0.006%
+0.050%
+0.032%
+0.015%
+0.080%
+0.061%
+0.042%
+0.167%
+0.145%
+0.123%
+0.185%
+0.127%
+0.070%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.9 Death


Death
Δp
Excess proportions (PRD's) of reports about US males in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+9.52%
+8.57%
+7.62%
+6.66%
+5.71%
+4.76%
+3.81%
+2.86%
+1.90%
+0.95%
0.00%
-100.00%
+1.277%
+1.203%
+1.129%
+0.179%
+0.088%
-0.043%
+0.317%
+0.212%
+0.106%
+0.352%
+0.206%
+0.059%
+0.717%
+0.573%
+0.428%
+2.715%
+2.540%
+2.365%
+9.058%
+8.207%
+7.360%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+


Death
Δp
Excess proportions (PRD's) of reports about US patients in each age group mentioning the descriptor with 90% CI
Studied VAERS report group: COVID-19 (no infection), Reports processed as of: 2023-01-13
+9.52%
+8.57%
+7.62%
+6.66%
+5.71%
+4.76%
+3.81%
+2.86%
+1.90%
+0.95%
0.00%
-100.00%
+0.667%
+0.637%
+0.607%
+0.065%
+0.012%
-0.042%
+0.100%
+0.062%
+0.023%
+0.121%
+0.071%
+0.020%
+0.308%
+0.258%
+0.208%
+1.275%
+1.209%
+1.143%
+5.318%
+4.945%
+4.574%
total
0-4
5-11
12-17
18-24
25-34
35-44
45-59
60-79
80+

5.2.10 The Complete List

The above is a sample of the safety signals seen in VAERS data up to January, 2023. Attached is the complete list of positive safety signals.

5.3 PRR and Chi-Square Analysis of South Carolina Data Extracted From VAERS dated 11/24/23