Gregory J. Glaser (SBN 226706)
4399 Buckboard Drive, Box 423
Copperopolis, CA 95228
Ph. (925) 642-6651
Fx. (209) 729-4557
greg@gregglaser.com

Ray L. Flores II (SBN 233643)
11622 El Camino Real Suite 100
San Diego, CA 92130
Ph. (858) 367-0397
Fx. (888) 336-4037
rayfloreslaw@gmail.com

Attorneys for Petitioners

UNITED STATES DISTRICT COURT OF CALIFORNIA

EASTERN DISTRICT - SACRAMENTO

Joy Garner, individually and on behalf of The Control Group; Joy Elisse Garner, individually and as parent of J.S. and F.G.; Evan Glasco, individually and as parent of F.G.; Traci Music, individually and as parent of K.M. and J.S., Michael Harris, individually and as parent of S.H., Nicole Harris, individually and as parent of S.H.,

Petitioners,

v.

PRESIDENT OF THE UNITED STATES OF AMERICA in his official capacity,

Respondent.

Case No.: 2:20−CV−02470−WBS−JDP

DECLARATION OF PETITIONERS' COUNSEL GREGORY J. GLASER PROVIDING OFFER OF PROOF

Date: February 22, 2021
Time: 1:30 PM
Courtroom: 5
Judge: William B. Shubb

I, Gregory J. Glaser, hereby declare:

1. I am the lead counsel for Petitioners in the above-entitled action. I have personal knowledge of the matters discussed herein, and if called as a witness could and would testify competently thereto.

2. In answer to Respondent's rush request to deny judicial notice, deny preliminary injunction, deny burden shifting, and dismiss this case, this declaration is provided as an offer of proof.

3. Attached as Exhibit A is a true and correct copy of a statistics report confirming precisely how The Control Group data shows both correlation and causation of vaccines in America's chronic illness crisis. Exhibit A provides classical frequentism and Bayesian statistics analyses, which are bedrocks of conventional statistics in both industry and courtrooms. Petitioners offer that both approaches (frequentism, Bayesian) independently confirm The Control Group data shows both correlation and causation of vaccines in America's chronic illness crisis. Petitioners assert it is not realistically possible these statistical relationships could all be by mere chance.

4. The results and findings in the attached exhibit A are based on the raw data itself, and not on Joy Garner's reports or Joy's findings. Joy's findings and reports are independent of Exhibit A, yet come to the same ultimate conclusion about the serious causal connection between vaccines and chronic illness; as the expert states in his Conclusions section:

- "The differences in health outcomes between the population of entirely unvaccinated (proportion estimated from survey sample) and vaccine-exposed (US population proportion reported by CDC), are staggering. There is very strong evidence, with a probability near 100%, that
  - "The disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of children is 352% higher than in the all unvaccinated (post-birth) surveyed children with at least 1 condition.
  - "The disease rate (multiple chronic conditions) in the vaccine-exposed (post-birth) US population of children is 505% higher than in the all unvaccinated (post-birth) surveyed children with at least 2 chronic conditions.
  - "The disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of adults is 951% higher than in the all

unvaccinated (post-birth) surveyed adults with at least 1 chronic condition.
    - "The disease rate (two chronic conditions) in the vaccine-exposed (post-birth) US population of adults is 4321% higher than in the all unvaccinated (post-birth) surveyed adults with at least 2 chronic condition.

- "Within the unvaccinated (post birth) control group, the differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines, and those with exposure to one, or both of these drugs, are also staggering.
    - "There is very strong evidence (probability = 100%) for surveyed children with at least one condition, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.1335- 0.0225)/0.0225 * 100 = 493% higher.
    - "There is strong evidence (probability = 99%) for surveyed children with at least 2 conditions, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.03044- 0.00118)/0.00118 * 100 = 2480% higher.
    - …

"Recommendations for future scientific research

- "To make the survey complete, it can be expanded in a targeted manner with the goal of filling in the missing data gaps. It is not necessary to do a completely new survey to repeat the frequentist sample. The conclusions from the Bayesian analyses are too conclusive for that!"

I declare under threat of penalty of perjury under the laws of the United States of America that the foregoing is true and correct, and that this declaration was executed on the date set forth below in Copperopolis, California.

Gregory J. Glaser — 2-15-21

Gregory J. Glaser — Date

Exhibit A

STATISTICAL EVALUATION OF HEALTH OUTCOMES IN THE UNVACCINATED

ALTERNATIVE METHODS AND ANALYSES

BACK-UP TO EXHIBIT C[1]

By: Jan-Willem van den Bergh

February 15, 2021

Table of Content

[1] Exhibit C by Joy Garner, February 9, 2021

1. Objectives

- Verify the correctness of the raw survey data source used for the analyses in Exhibit C.
- Verify the analyses for the main conclusions in Exhibit C by using alternative methods (both theories and software packages)
- To ensure that the analyses in Exhibit C, which are presented in text form, can be optimally understood by all readers, it is necessary to also present them by means of tables, diagrams and formulas.

The main conclusions of Exhibit C are:

- Risk factors are expressed in numbers.
- The differences in health outcomes between the population of entirely unvaccinated (proportion estimated from survey sample) and vaccine-exposed (US population proportion reported by CDC), are staggering.
- Within the unvaccinated (post birth) control group, the differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines, and those with exposure to one, or both of these drugs, are also staggering.

The main conclusions are presented as bar charts in Diagrams 1.1 and 1.2.[2].

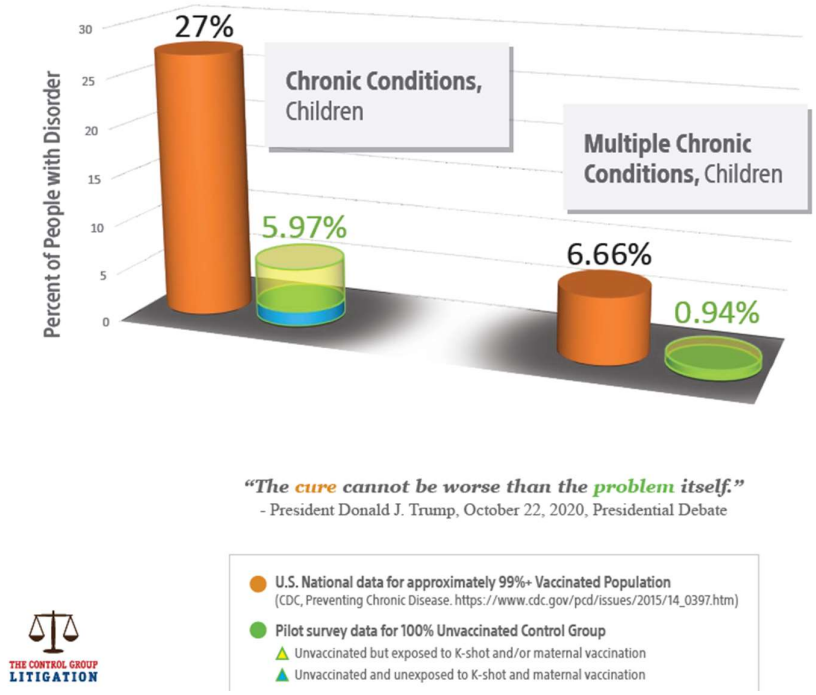


Diagram 1.1: Chronic Conditions, Children, Vaccinated -vs- Unvaccinated

[2] 2020 Pilot Survey Data Comparison Vaccinated -vs- Unvaccinated. Graphs for Further Statistical Analysis.pdf

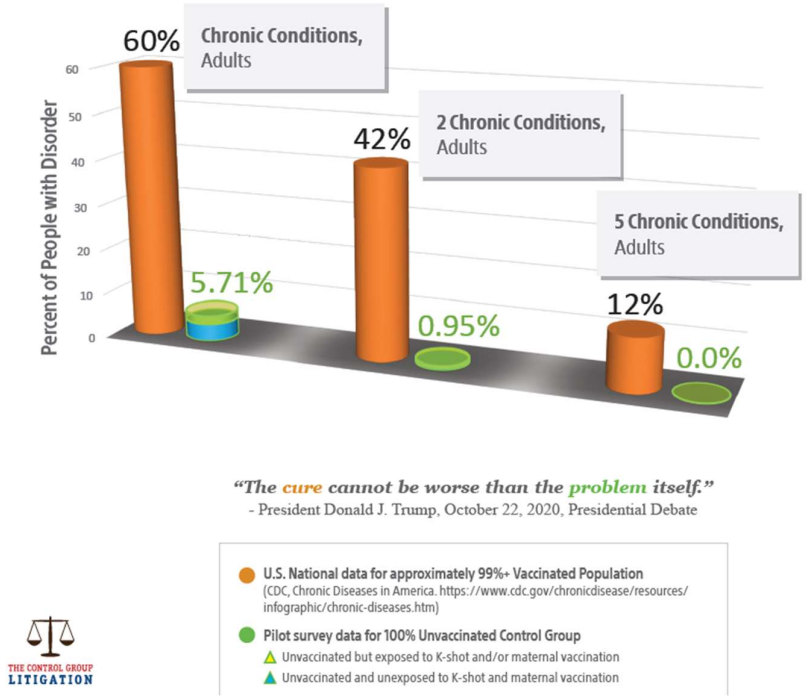


Diagram 1.2: Chronic Conditions, Adults. Vaccinated -vs- Unvaccinated

2. Source Data Overview and Verification

The following two tables show summaries of the raw survey data[3] for the US only. The data are aggregated for 48 states and stratified by age groups (children, adults), gender (male, female), maternal vaccination during pregnancy (PREG_VAC: yes, no) and whether a vitamin K shot was given to the new-born (VIT-K: yes, no). Age under 18 is defined as "Child". Age equal to 18 years or older is defined as "Adult".

Table 2.1 shows the observations for *at least one health condition*. Table 2.2 shows counts for *multiple chronic health conditions*.

All Ages Surveyed

AGE_GROUP	GENDER	PREG_VAC	VIT-K	at_least_1_condition	SampleSize	Proportion %	Group
Child	female	no	no	7	445	1,57	Control
Adult	female	no	no	6	112	5,36	Control
Child	male	no	no	12	400	3,00	Control
Adult	male	no	no	2	67	2,99	Control
Child	female	yes	no	1	12	8,33	Treatment
Adult	female	yes	no	*	*	*	Treatment
Child	male	yes	no	3	7	42,86	Treatment
Adult	male	yes	no	*	*	*	Treatment
Child	female	no	yes	24	176	13,64	Treatment
Adult	female	no	yes	3	13	23,08	Treatment
Child	male	no	yes	20	203	9,85	Treatment
Adult	male	no	yes	1	17	5,88	Treatment
Child	female	yes	yes	3	10	30,00	Treatment
Adult	female	yes	yes	*	*	*	Treatment
Child	male	yes	yes	6	19	31,58	Treatment
Adult	male	yes	yes	0	1	0,00	Treatment
			Totals	27	1024	2,64	Control
				61	458	13,32	Treatment
				88	1482		

Table 2.1: stratifications, counts and calculated proportions in % for "at least 1 condition"

[3] CONTROL GROUP RAW DATA – REDACTED – 8 July 2020.xls

All Ages Surveyed

AGE_GROUP	GENDER	PREG_VAC	VIT-K	Multiple_*Chronic* _HC	SampleSize	Proportion %	Group
Child	female	no	no	1	445	0,22	Control
Adult	female	no	no	1	112	0,89	Control
Child	male	no	no	0	400	0,00	Control
Adult	male	no	no	0	67	0,00	Control
Child	female	yes	no	0	12	0,00	Treatment
Adult	female	yes	no	*	*	*	Treatment
Child	male	yes	no	0	7	0,00	Treatment
Adult	male	yes	no	*	*	*	Treatment
Child	female	no	yes	3	176	1,70	Treatment
Adult	female	no	yes	1	13	7,69	Treatment
Child	male	no	yes	6	203	2,96	Treatment
Adult	male	no	yes	0	17	0,00	Treatment
Child	female	yes	yes	2	10	20,00	Treatment
Adult	female	yes	yes	*	*	*	Treatment
Child	male	yes	yes	2	19	10,53	Treatment
Adult	male	yes	yes	0	1	0,00	Treatment
				2	1024	0,20	Control
			Totals	14	458	3,06	Treatment
				16	1482		

Table 2.2: *stratifications, counts and calculated proportions in % for "Multiple Chronic Health Conditions"*

The first 4 data lines of the tables (highlighted in blue) contain the data for people who were never vaccinated at all. So as a new-born did not have a vitamin K shot nor was the mother vaccinated during pregnancy. This group is defined as the entirely unvaccinated "Control" group. The data lines 5 thru 16 (grey shaded) contain treatment combinations (maternal vaccination, vitamin K-shot). This group is further referred to as "unvaccinated (post birth)". Notice that the tables contain *all possible treatment combinations in a balanced (i.e. orthogonal) full factorial standard scheme*. *Because of missing data (indicated by *) the analyses must account for confounding effects, that may inflate variance.*

US Population Data[4] [5] [6] [7]

AGE_GROUP	GENDER	VACCINATED	Chronic Condition	Population Size	Proportion %
Children	males & females	yes	20007000	74100000	27
Adults	males & females	yes	153025265	255042109	60

AGE_GROUP	GENDER	VACCINATED	Multiple Chronic Conditions	Population Size	Proportion %
Children	males & females	yes	4935060	74100000	6,66
Adults	males & females	yes	107117686	255042109	42

Table 2.3: Chronic conditions in vaccine-exposed (post birth) US population

Source Data Verification

The counts were carried out using the original Excel data file. One time using both the filtering and counting functions of Microsoft Excel for Microsoft 365 MSO (16.0.13530.20418) and one time using the counting functions of the statistical software package Minitab V19.2020.1. All counts matched the numerical values of Exhibit C. This verified that the information from the original Excel file and the transfer to Exhibit C was error-free. The summarized data in the tables can all be found in Exhibit C. The tables are therefore error-free.

[4] https://www.childstats.gov/americaschildren/tables/pop1.asp (population size children, 2010)
[5] https://www.cdc.gov/pcd/issues/2015/14_0397.htm (disease rate children)
[6] https://www.census.gov/quickfacts/fact/table/US/PST045219 (population size adults, 2019)
[7] https://www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm (disease rate adults)

Tally tables for observed diseases

Tally

1-DISEASE	Count
ADHD	6
ALLERGY- Animal	2
ALLERGY- Food	13
ALLERGY- Multiple	1
AUTISM- SPECTRUM DIS.	1
BIRTH - Hospital Birth - Neuro-Injury	1
BIRTH - In-Utero stroke- Esotropia	1
BIRTH - Microcephaly	1
BIRTH- Congenital Heart Defect	1
BIRTH- Congenital Thyroid Defect	1
BIRTH- Defect Down Syndrome	2
BIRTH- POV/VUR Urinary tract defect	1
BIRTH- Renal Agenesis -Missing kidney	1
BLOOD PRESSURE- Elevated	1
BONE- Scoliosis	1
DIGESTIVE Pyloric Stenosis Vomiting	1
DIGESTIVE- Gasroenteritis	1
DIGESTIVE- Issues non-specIfic	1
DIGESTIVE- Non-specific - Mild resolving	1
EAR- Fluid behind ear/Tube	1
EYE- Cataracts	1
EYE- Strabismus	1
IMMUNE- Autoimmune Disorder/Liver	1
IMMUNE- PANDAS	1
IMMUNE- Undifferentiated Autoimmune UCTD	1
LIVER- Jaundice	2
LUNGS- Asthma	3
MENTAL- Learning Dis.	4
MENTAL- Processing Disorder	1
NERVOUS SYSTEM- Dysautonomia	1
NERVOUS SYSTEM- Epilespy	1
NERVOUS SYSTEM- Menstrual Seizures	1
NERVOUS SYSTEM- Nervous tics	1
NERVOUS SYSTEM- Seizure Disorder	2
SKIN- Eczema	19
SKIN- Psoriasis	1
SPEECH- disorder	4
THYROID - "storm"	1
THYROID - Hashimotos	3
N=	88
*=	1394

1-DISEASE_coded	Count
N	1394
Y	88
N=	1482

Tally

2-DISEASE	Count
ALLERGY- Dust/dand	1
AUTISM	1
BIRTH - cerebral pals	1
DIGESTIVE- GERD	1
LUNGS- Asthma	5
MENTAL- SPD Sen Proc. Disorder	2
NASAL- Sinus	1
NERVOUS SYSTEM- Tics	1
NERVOUS SYTEM- Fibromyalgia	1
SKIN- Eczema	1
SPEECH- Delay	1
THYROID - Hypo	1
N=	17
*=	1465

2-DISEASE_coded	Count
N	1465
Y	17
N=	1482

Tally

3-DISEASE	Count
ALLERGY-Food	1
BIRTH - 3 kindeys	1
DIGESTIVE- Issues	1
LUNGS- Asthma	1
N=	4
*=	1478

MULTIPLE-CHRONIC_coded	Count
N	1466
Y	16
N=	1482

3. Standard Frequentist Analyses

Objective: verify the analyses for the main conclusions in Exhibit C by using the standard frequentist method with the statistical software package Minitab V19. 2020.1.[8]

3.1 Assumptions and Basic Reasoning

A Frequentist draws *randomly* an *infinite* number of *representative*, *independent* samples from *imagined fixed* population distributions under *exactly the same conditions*. In this survey: binomial pass/fail distributions. The uncertainty is obviously in the sample. The sample should be large enough so that the following are true: (1) the estimates have enough precision, (2) the confidence intervals are narrow enough to be useful, (3) you have adequate protection against type I and type II errors. See table 3.1.1. below for the definition of Type I and II errors.

		REALITY (unknown)	
		Unvaccinated are healthier than vaccinated	Unvaccinated are not healthier than vaccinated
DECISION (based on sample data)	Reject Null Hypothesis: decide unvaccinated are healthier than vaccinated	**Correct Decision** 	**Type I Error (α)** 
	Fail to reject Null Hypothesis: decide unvaccinated are not healthier than vaccinated	**Type II Error (1-β)** 	**Correct Decision** 

Table 3.1.1: Type I and II errors

In the criminal justice system, juries are told to presume that someone (e.g. scientist) is innocent until proven guilty (of corrupting science)[9], meaning the null hypothesis is that the suspect is innocent, and the prosecution has to prove its case. What would a Type I and Type II error look like in this context?

A Type I error would be that scientists developing vaccines are innocent (they apply the true scientific method and enumerate risks to accurately calculate the risk-to-benefit ratio of vaccination), but they're convicted anyway.

A Type II error would be that scientists developing vaccines are guilty of corrupting science, but the result of the trial is that they're acquitted.

[8] https://www.minitab.com/en-us/about-us/

[9] Refer to Exhibit C, Introduction, Point 2. The Scientific Method and Chapter 2, Construct Validity (A) Premises

Obviously, both of these are problematic, but the criminal justice system puts a lot of safeguards in place to make sure that a Type I error doesn't happen very often. In fact, the criminal justice system allows a Type II error to happen fairly frequently in order to reduce a Type I error.

Therefore, in this analysis, the significance level $\alpha = 1\%$ is considered an adequate protection against a Type I error (i.e. the confidence level = 99%). A test power of $\beta = 80\%$ is enough to control the consequences of a Type II error (i.e., in 20% of the cases a type II error is acceptable).

Initial hypothesis definition

The hypothesis in Chapter 2 of Exhibit C is described as follows: "Entirely unexposed, i.e., 'unvaccinated' people suffer from less of the injuries and consequent health problems that vaccines are known to cause, than the vaccine-exposed population suffers from." This formulation is effectively the *alternative* (also *working*) hypothesis in a classical, frequentist statistical analysis. The hypothesis is statistically correctly formulated as follows:

The difference between the population proportions (p1-p2) is less than the hypothesized difference (d0), where

> p1 is the population proportion of health outcomes in a representative sample (n1) across the Nation of entirely unvaccinated, i.e. completely unexposed controls (0,26% of the total population in the USA)
>
> p2 is the population proportion of health outcomes in a representative sample (n2) across the Nation of vaccinated people (99,74% of the total population in the USA)
>
> d0 = 0, i.e. there is no difference between population proportions (also called the Null Hypothesis). However, the relevant 'Null Hypothesis' is not whether or not vaccines are safe. Vaccines are already known to be unavoidably unsafe. Consequently, a one-sided alternative hypothesis is more adequate, i.e., $p1-p2 < 0$. Ultimately, providing a numerical risk value (i.e. d0) facilitates an evaluation of the risk/benefit ratio, at any level of exposure.[10] This requires the definition of a minimum detectable difference that has practical importance (i.e., prove the defendant is guilty "beyond a reasonable doubt"). The difference between the ratios that has practical value was set at 5% by agreement within The Control Group.

To determine whether the difference between the population proportions is statistically significant (i.e. detectable), compare the *p-value* to the significance level. Usually, a significance level (denoted as α) of 0.01 works well in court. A significance level of 0.01 indicates a 1% risk of concluding that a difference exists when there is no actual difference.

[10] Exhibit C, page 6, note 5.

Definition of the "p-value"[11]

Informally, a p-value is the probability under a specified statistical model that a statistical summary of the data (e.g., the sample mean difference between two compared groups) would be equal to or more extreme than its observed value.

Principles:

- P-values can indicate how incompatible the data are with a specific statistical model.
- P-values do not measure the probability that the studied hypothesis is true, or the probability that the data were produced by random chance alone.
- Scientific conclusions and business or policy decisions should not be based only on whether a p-value passes a specific threshold. A conclusion does not immediately become "true" on one side of the divide and "false" on the other.
- A p-value, or statistical significance, does not measure the size of an effect or the importance of a result.
- By itself, a p-value does not provide a good measure of evidence regarding a model or hypothesis.

Avoidance of "p-hacking"[12]

"p-hacking", occurs when researchers collect or select data or statistical analyses until nonsignificant results become significant. In this study a common practice that may lead to p-hacking is *excluding, combining, or splitting treatment groups post analysis*. It is therefore important to measuring only response variables that are known (or predicted) to be important; using sufficient sample sizes, and select analysis methods that avoid the multi-testing problem.

[11] https://amstat.tandfonline.com/doi/full/10.1080/00031305.2016.1154108#.Vt2XIOaE2MN
[12] https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1002106

3.2. Analyses

The representation of the bar graphs in Diagrams 1.1 and 1.2 does not require the detailed stratification in Tables 2.1 and 2.2. Stratification was limited to "Control," "Treatment," and "Population," also to overcome p-hacking (see section 3.1). To avoid p-hacking more than two samples must be compared *at once*. Because we deal with proportions (P) a “Chi-Square % Defective” test is most appropriate. The Assistant function for hypothesis testing in Minitab V19 shows the selection path (on the right hand side).

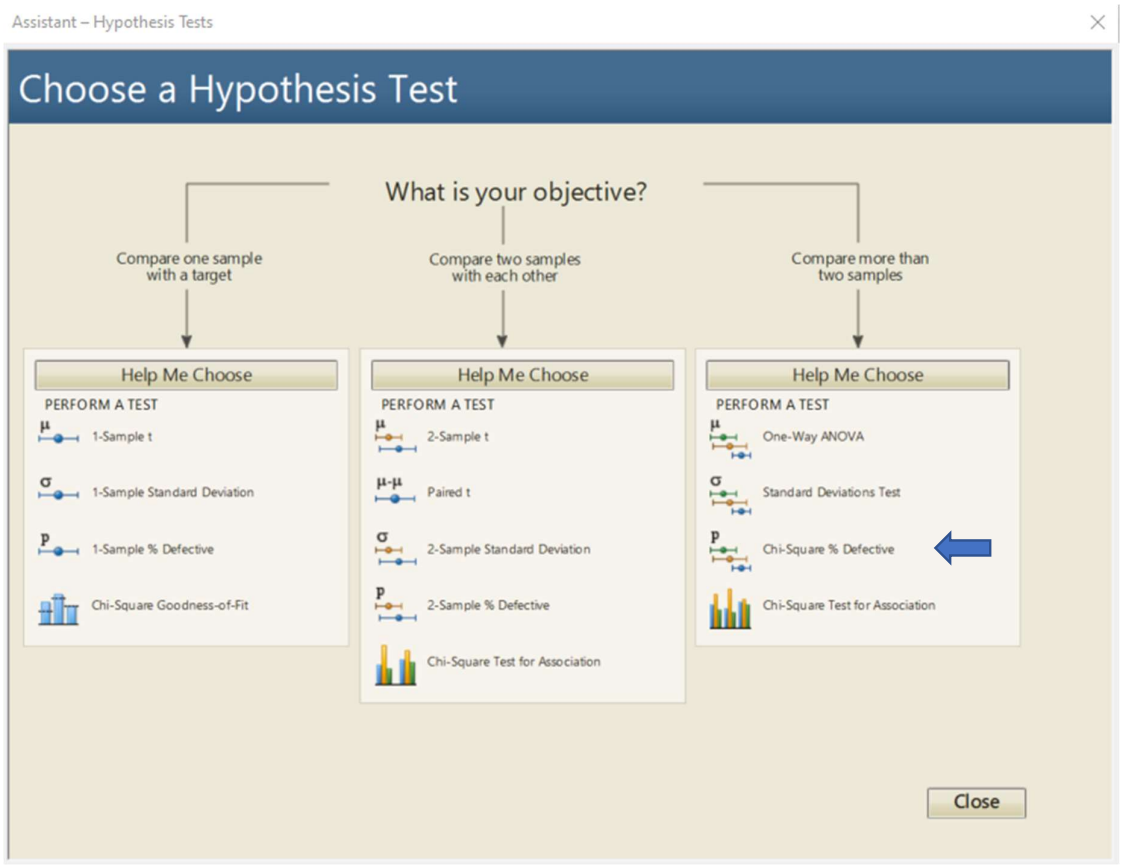


Diagram 3.2.1 Assistant function for hypothesis testing in Minitab V19

Note that the definition of the hypothesis differs from the original hypothesis as formulated in section 2 of Exhibit C and as detailed in section 3.1. of this report. The correct null hypothesis is now:

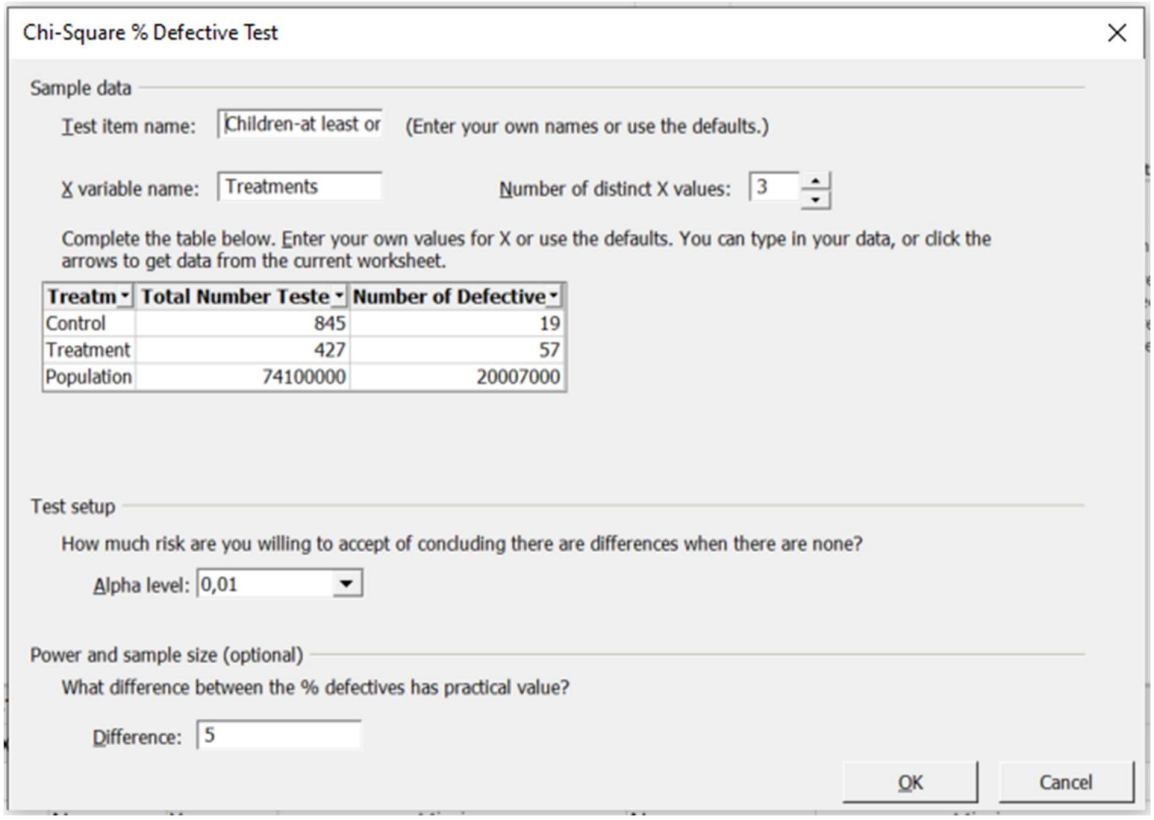
$$P_{Population} = P_{Control} = P_{Treatment}$$

And the alternative hypothesis:

At least one proportion (P) is different

3.2.1. Chronic Conditions, Children – At Least 1 Condition

Data entry:



Summary reports

Chi-Square % Defective Test for Children with At Least One Health Condition by Treatments
Diagnostic Report

Number of Defective and Nondefective Items

Treatments	Defective Observed	Defective Expected	Nondefective Observed	Nondefective Expected
Control	19	228	826	617
Treatment	57	115	370	312
Population	20007000	20006733	54093000	54093267

- To ensure validity of the test, the expected number of defectives and nondefectives should be at least 1,5.
- To ensure validity of the comparison intervals, the observed number of defectives and nondefectives should be at least 5.

Chi-Square % Defective Test for Children with At Least One Health Condition by Treatments
Report Card

Check	Status	Description
Validity of Test	✓	All samples are large enough to obtain sufficient expected counts. The p-value for the test should be accurate.
Validity of Intervals	✓	All samples have at least 5 defectives and 5 nondefectives. The comparison intervals should be accurate.
Sample Size	✓	The sample is sufficient to detect differences among the % defectives. Because you entered a difference of interest, the Power Report provides a sample size evaluation for this difference. You do not need to be concerned that the power is low because the test detected a difference.

Chi-Square % Defective Test for Children with At Least One Health Condition by Treatments
Summary Report

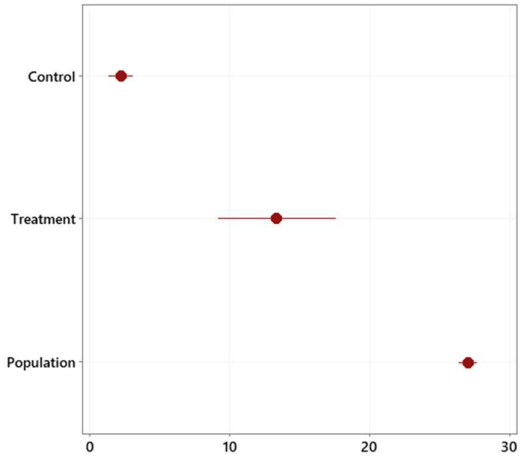
Do the % defectives differ?

Differences among the % defectives are significant (p < 0,01).

Which % defectives differ?

#	Treatments	Differs from
1	Control	2 3
2	Treatment	1 3
3	Population	1 2

% Defectives Comparison Chart
Red intervals that do not overlap differ.



Comments

- Test: You can conclude that there are differences among the % defectives at the 0,01 level of significance.
- Comparison Chart: Look for red comparison intervals that do not overlap to identify % defectives that differ from each other. Consider the size of the differences to determine if they have practical implications.

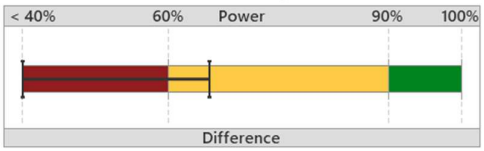
Control: entirely unvaccinated, no treatments
Treatment: all 3 combinations of maternal vaccination and vitamine K-shot
Population: vaccine-exposed (post-birth) US population

Precision Intervals
Control = (1,39; 3,11)
Treatment = (9,16; 17,54)
Population = (26,36; 27,63)

Chi-Square % Defective Test for Children with At Least One Health Condition by Treatments

Power Report

What is the chance of detecting a difference of 5?



Based on your samples and α level (0,01), the chance of detecting a difference of 5 ranges from 17,74% to 65,56%.

What sample sizes are required to detect a difference of 5?

All Samples	Power
1538	60%
1824	70%
2189	80%
2748	90%

Power is a function of the sample sizes and the % defectives. If the power is not satisfactory, consider increasing the sample sizes.

Statistics

Treatments	Number Tested	Defectives	% Defective	Individual 99% CI
Control	845	19	2,25	(1,15; 3,92)
Treatment	427	57	13,35	(9,42; 18,12)
Population	7,41e+07	20007000	27,00	(26,99; 27,01)

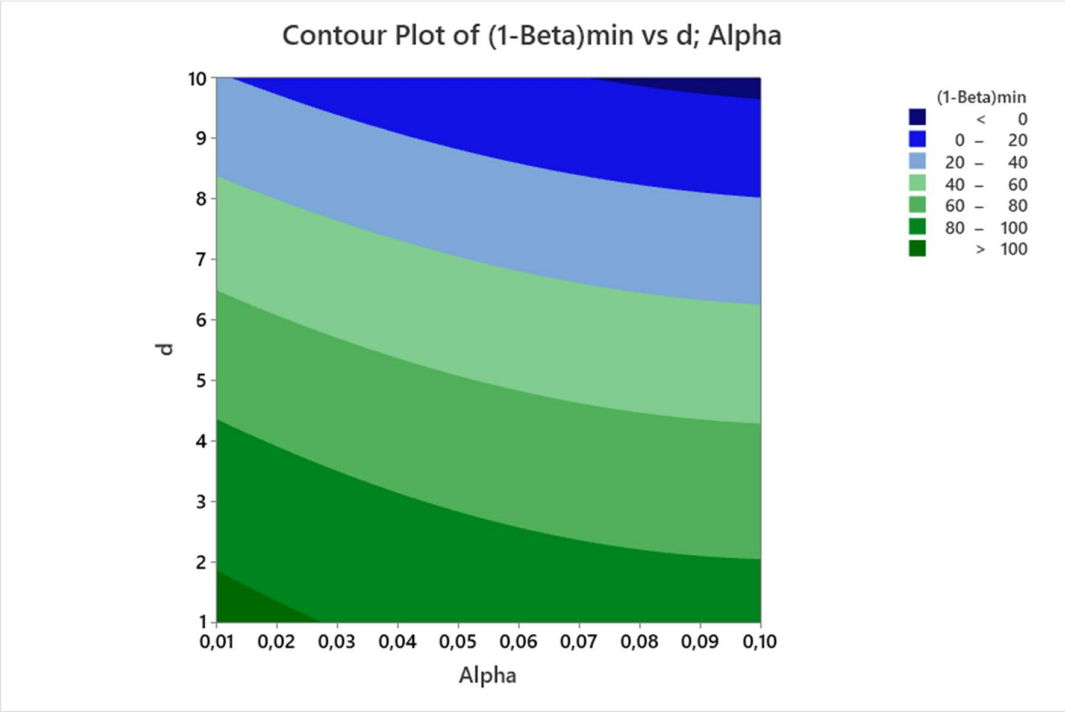
Increase Risk of at least one condition according to exposure:

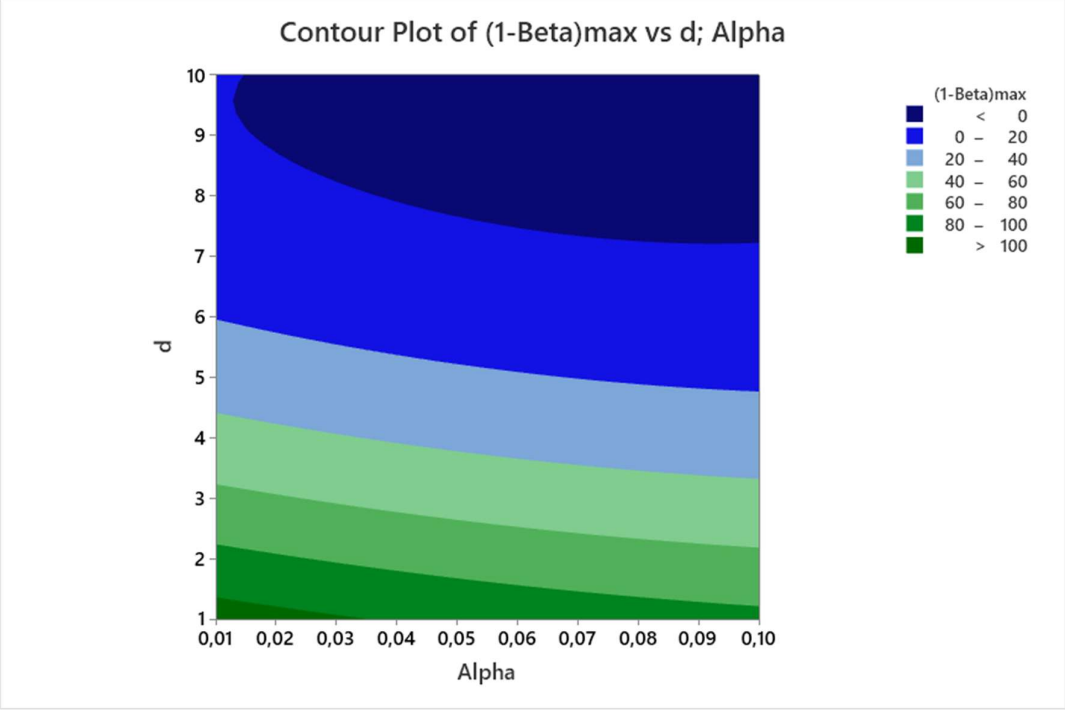
- From Control (entirely unvaccinated) to Treatment (maternal vaccination and/ or K-shot) = (13,35 -2,25) / 2,25 *100% = **493%**
- From Treatment (maternal vaccination and/ or K-shot) to Population (vaccine-exposed) = (27,00 – 13,35) / 13,35 * 100% = **102%**
- From Control (entirely unvaccinated) to Population (vaccine-exposed) = (27,00-2,25) / 2,25 *100% = **1100%**

- Note: Group “Control” and Group “Treatment” merged gives group “All Unvaccinated (post-birth) Surveyed” = (76 / 1272) * 100% = 5,97%. Increase risk from All Unvaccinated (post-birth) Surveyed to Population = (27,00 – 5,97) / 5,97 * 100% = **352%**

Type I (Alpha) and Type II (1-Beta) Error Control[13]

d = the difference between the proportions that has practical value. (1-Beta) displayed in %

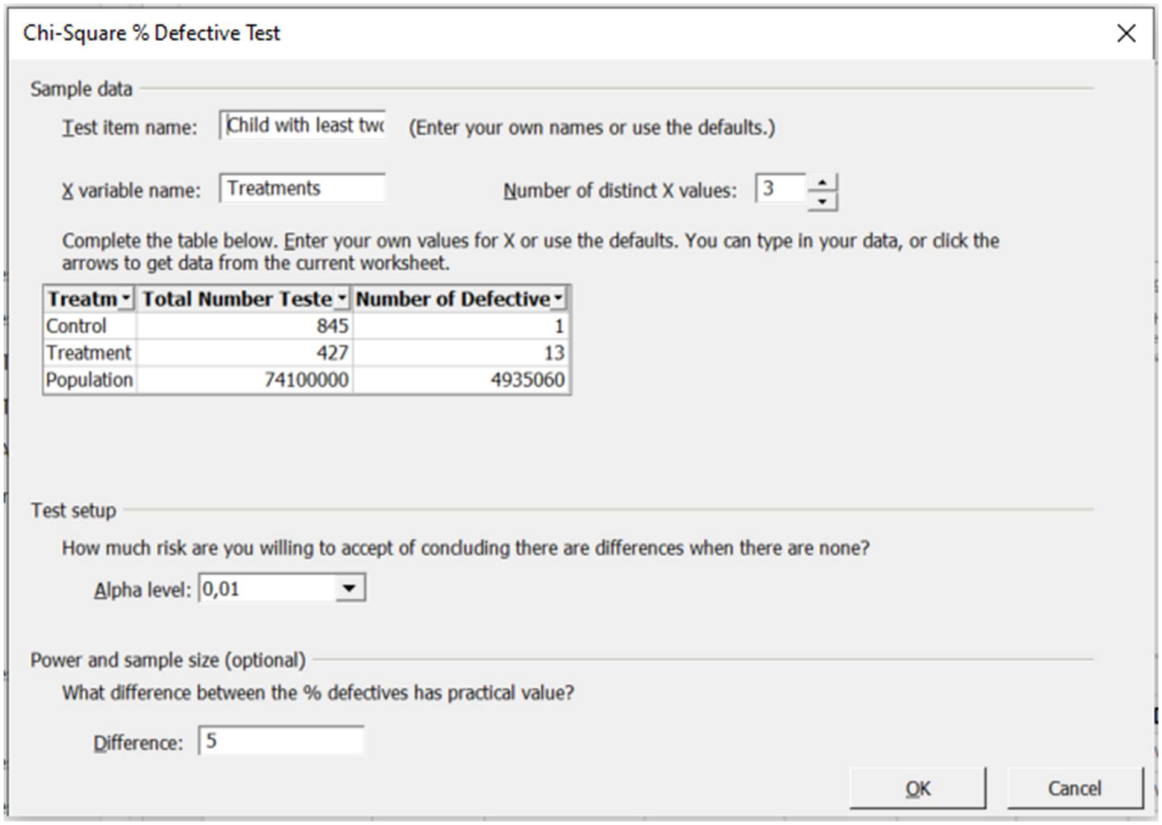




[13] These contour graphs can be used if it turns out in court that other values for *alpha* and/or *d* better balance the risk of wrong decisions.

3.2.2. Multiple Chronic Conditions, Children – At Least 2 Chronic Conditions

Data entry:



Treatm	Total Number Teste	Number of Defective
Control	845	1
Treatment	427	13
Population	74100000	4935060

Summary reports

Chi-Square % Defective Test for Children with At Least Two Chronic Conditions by Treatments
Diagnostic Report

Number of Defective and Nondefective Items

Treatments	Defective Observed	Defective Expected	Nondefective Observed	Nondefective Expected
Control	1*	56,3	844	789
Treatment	13	28,4	414	399
Population	4935060	4934989	69164940	69165011

* Indicates a violation.

- To ensure validity of the test, the expected number of defectives and nondefectives should be at least 1,5.
- To ensure validity of the comparison intervals, the observed number of defectives and nondefectives should be at least 5.

Chi-Square % Defective Test for Children with At Least Two Chronic Conditions by Treatments
Report Card

Check	Status	Description
Validity of Test	✓	All samples are large enough to obtain sufficient expected counts. The p-value for the test should be accurate.
Validity of Intervals	⚠	The number of defectives or nondefectives for one or more samples is less than 5. The comparison intervals may not be accurate. Use the table on the Diagnostic Report to identify low counts. As the number of defectives and nondefectives increases, the accuracy of the comparison intervals increases.
Sample Size	✓	The sample is sufficient to detect differences among the % defectives. Because you entered a difference of interest, the Power Report provides a sample size evaluation for this difference. You do not need to be concerned that the power is low because the test detected a difference.

Chi-Square % Defective Test for Children with At Least Two Chronic Conditions by Treatments
Summary Report

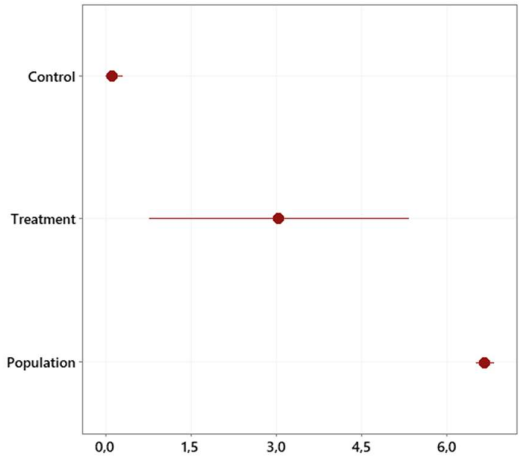
Do the % defectives differ?

Differences among the % defectives are significant (p < 0,01).

Which % defectives differ?

#	Treatments	Differs from
1	Control	2 3
2	Treatment	1 3
3	Population	1 2

% Defectives Comparison Chart
Red intervals that do not overlap differ.



Comments

- Test: You can conclude that there are differences among the % defectives at the 0,01 level of significance.
- Comparison Chart: Look for red comparison intervals that do not overlap to identify % defectives that differ from each other. Consider the size of the differences to determine if they have practical implications.

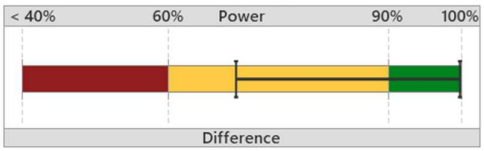
Control: entirely unvaccinated, no treatments
Treatment: all 3 combinations of maternal vacination and vitamin K-shot
Population: vaccine-exposed (post-birth) US population

Precision Intervals:
Control = (0,00; 0,30)
Treatment = (0,76; 5,32)
Population = (6,50; 6,82)

Chi-Square % Defective Test for Children with At Least Two Chronic Conditions by Treatments

Power Report

What is the chance of detecting a difference of 5?



Based on your samples and α level (0,01), the chance of detecting a difference of 5 ranges from 69,20% to 99,82%.

What sample sizes are required to detect a difference of 5?

All Samples	Power
485	60%
576	70%
691	80%
867	90%

Power is a function of the sample sizes and the % defectives. If the power is not satisfactory, consider increasing the sample sizes.

Statistics

Treatments	Number Tested	Defectives	% Defective	Individual 99% CI
Control	845	1	0,12	(0,00; 0,88)
Treatment	427	13	3,04	(1,32; 5,88)
Population	7,41e+07	4935060	6,66	(6,65; 6,67)

Increase Risk of at least two chronic conditions according to exposure:[14]

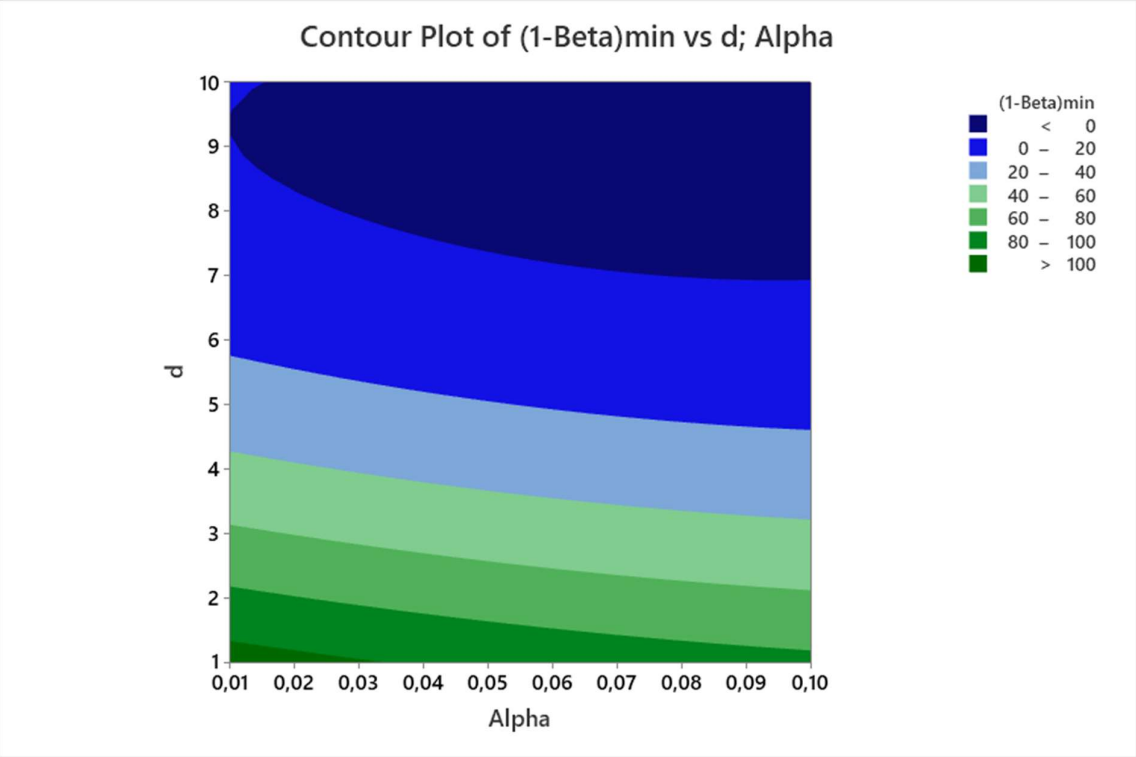
- From Control (entirely unvaccinated) to Treatment (maternal vaccination and/ or K-shot) = (3,04 -0,12) / 0,12 *100% = **2433%**
- From Treatment (maternal vaccination and/ or K-shot) to Population (vaccine-exposed) = (6,60 – 3,04) / 3,04 * 100% = **117%**
- From Control (entirely unvaccinated) to Population (vaccine-exposed) = (6,60 - 0,12) / 0,12 *100% = **5400%**

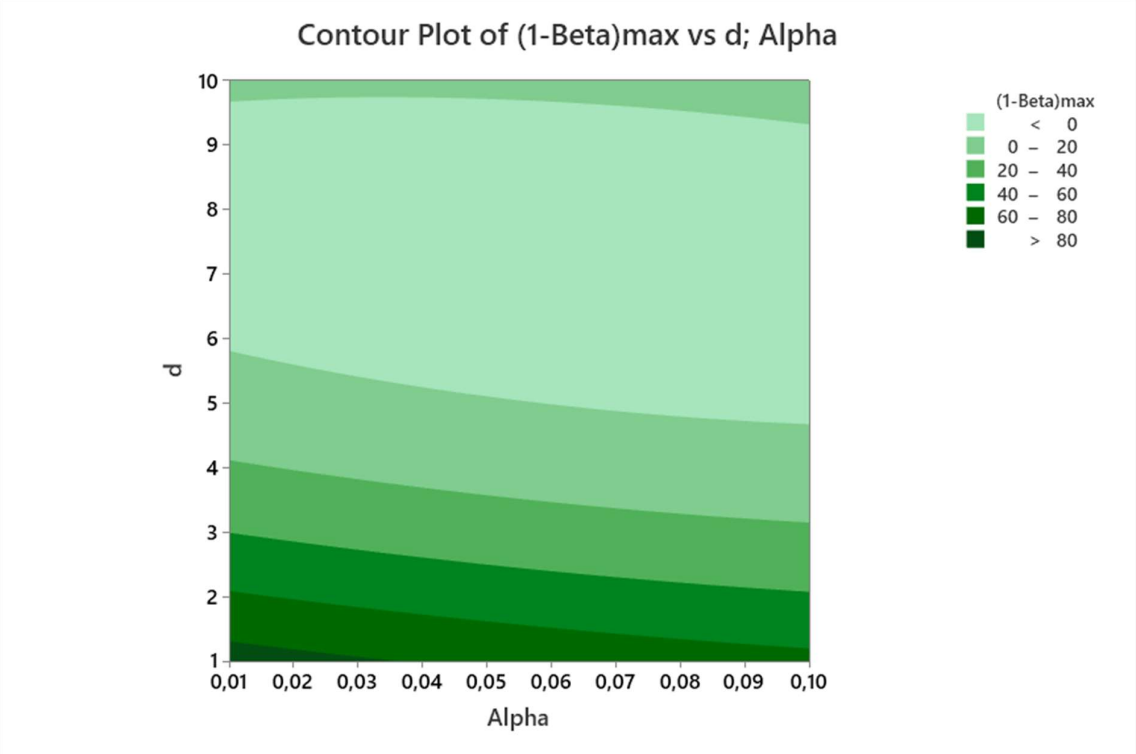
- Note: Group "Control" and Group "Treatment" merged gives group "All Unvaccinated (post-birth) Surveyed" = (14 / 1272) * 100% = 1,10%. Increase risk from All Unvaccinated (post-birth) Surveyed to Population = (6,66 – 1,10) / 1,10 * 100% = **505%**

[14] See both the accompanying Diagnostic Report and the Report Card for comments on validity.

Type I (Alpha) and Type II (1-Beta) Error Control

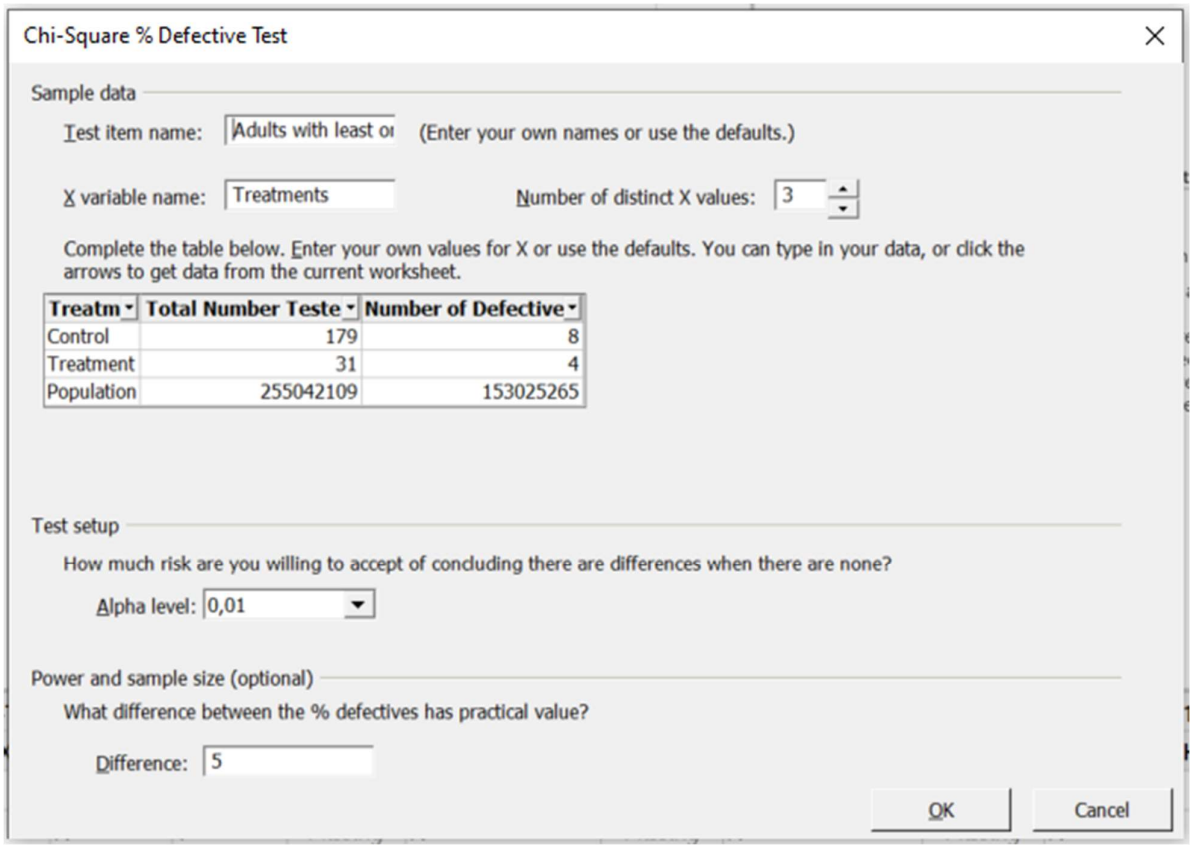
d = the difference between the proportions that has practical value. (1-Beta) displayed in %.





3.2.3. Chronic Conditions, Adults – At Least 1 Chronic Condition

Data entry:



Summary reports

Chi-Square % Defective Test for Adults with At Least One Chronic Condition by Treatments

Diagnostic Report

Number of Defective and Nondefective Items

Treatments	Defective Observed	Defective Expected	Nondefective Observed	Nondefective Expected
Control	8	107	171	71,6
Treatment	4*	18,6	27	12,4
Population	153025265	153025151	102016844	102016958

* Indicates a violation.

- To ensure validity of the test, the expected number of defectives and nondefectives should be at least 1,5.
- To ensure validity of the comparison intervals, the observed number of defectives and nondefectives should be at least 5.

Chi-Square % Defective Test for Adults with At Least One Chronic Condition by Treatments

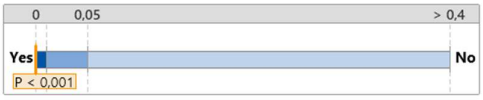
Report Card

Check	Status	Description
Validity of Test	✓	All samples are large enough to obtain sufficient expected counts. The p-value for the test should be accurate.
Validity of Intervals	!	The number of defectives or nondefectives for one or more samples is less than 5. The comparison intervals may not be accurate. Use the table on the Diagnostic Report to identify low counts. As the number of defectives and nondefectives increases, the accuracy of the comparison intervals increases.
Sample Size	✓	The sample is sufficient to detect differences among the % defectives. Because you entered a difference of interest, the Power Report provides a sample size evaluation for this difference. You do not need to be concerned that the power is low because the test detected a difference.

Chi-Square % Defective Test for Adults with At Least One Chronic Condition by Treatments

Summary Report

Do the % defectives differ?



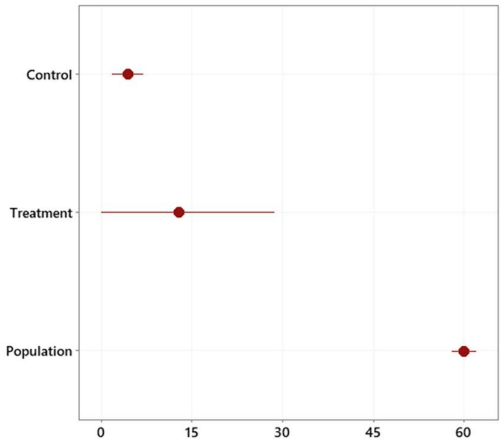
Differences among the % defectives are significant (p < 0,01).

Which % defectives differ?

#	Treatments	Differs from
1	Control	3
2	Treatment	3
3	Population	1 2

% Defectives Comparison Chart

Red intervals that do not overlap differ.



Comments

- Test: You can conclude that there are differences among the % defectives at the 0,01 level of significance.
- Comparison Chart: Look for red comparison intervals that do not overlap to identify % defectives that differ from each other. Consider the size of the differences to determine if they have practical implications.

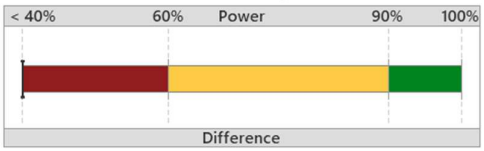
Control: entirely unvaccinated, no treatments
Treatment: all 3 combinations of maternal vaccination and vitamin K-shot
Population: vaccine-exposed (post-birth) US population

Precision Intervals:
Control = (1,92; 7,02)
Treatment = (0,00; 28,60)
Population = (58,02; 61,98)

Chi-Square % Defective Test for Adults with At Least One Chronic Condition by Treatments

Power Report

What is the chance of detecting a difference of 5?



Based on your samples and α level (0,01), the chance of detecting a difference of 5 ranges from 1,69% to 7,78%.

What sample sizes are required to detect a difference of 5?

All Samples	Power
1873	60%
2221	70%
2666	80%
3346	90%

Power is a function of the sample sizes and the % defectives. If the power is not satisfactory, consider increasing the sample sizes.

Statistics

Treatments	Number Tested	Defectives	% Defective	Individual 99% CI
Control	179	8	4,47	(1,45; 10,08)
Treatment	31	4	12,90	(2,25; 35,33)
Population	2,55042e+08	153025265	60,00	(100,00; 100,00)

Increase Risk of at least one chronic condition according to exposure:[15]

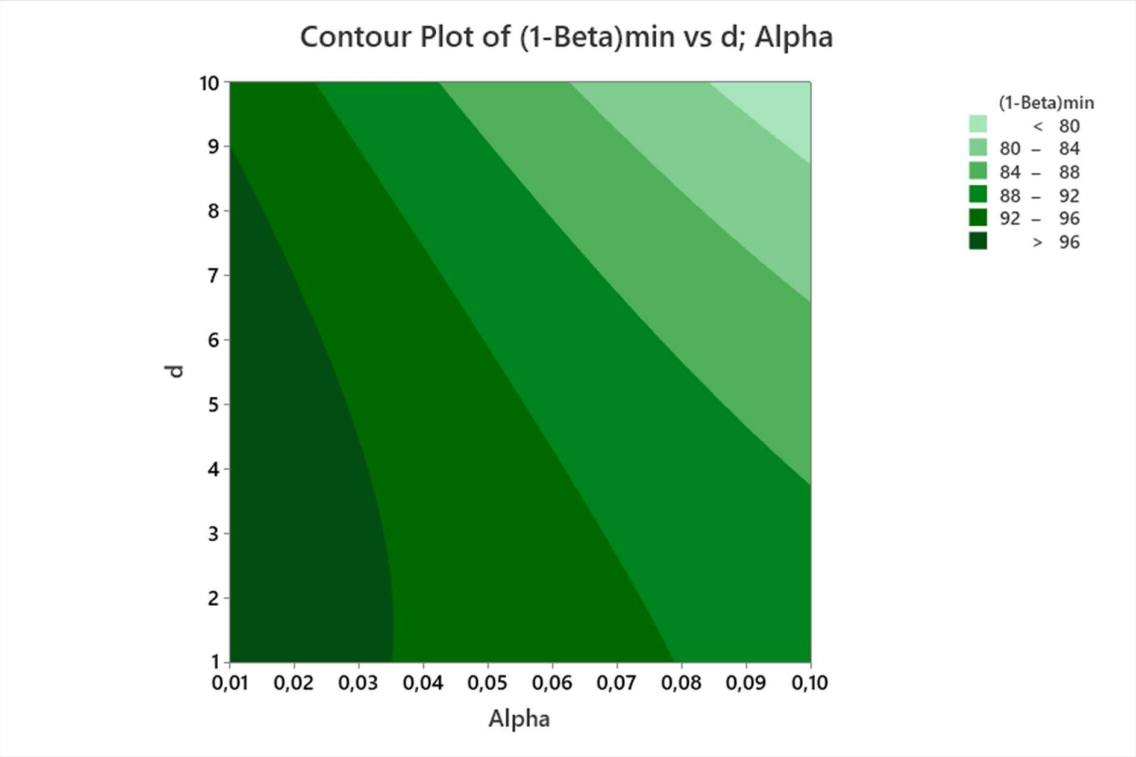
- From Control (entirely unvaccinated) to Treatment (maternal vaccination and/ or K-shot) = (12,90 – 4,47) / 4,47 *100% = **189%**
- From Treatment (maternal vaccination and/ or K-shot) to Population (vaccine-exposed) = (60,00 – 12,90) / 12,90 * 100% = **365%**
- From Control (entirely unvaccinated) to Population (vaccine-exposed) = (60,00 – 4,47) / 4,47 *100% = **1242%**

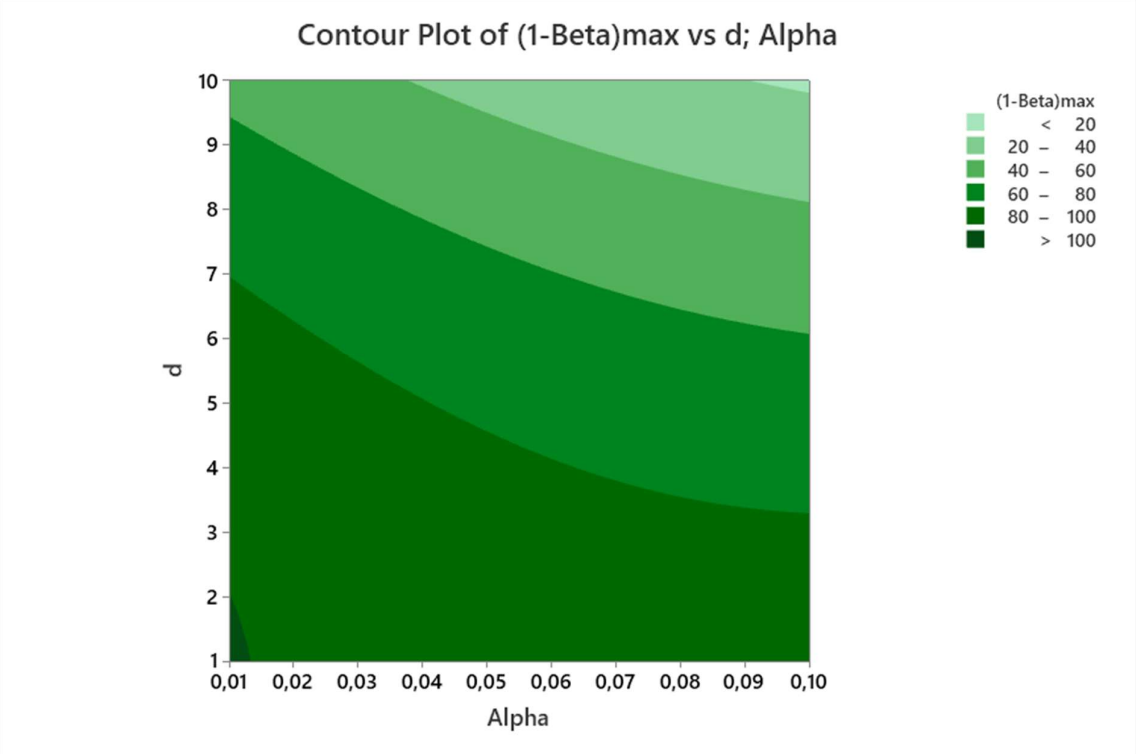
- Note: Group "Control" and Group "Treatment" merged gives group "All Unvaccinated (post-birth) Surveyed" = (12 / 210) * 100% = 5,71%. Increase risk from All Unvaccinated (post-birth) Surveyed to Population = (60,00 – 5,71) / 5,71 * 100% = **951%**

[15] See both the accompanying Diagnostic Report and the Report Card for comments on validity.

Type I (Alpha) and Type II (1-Beta) Error Control

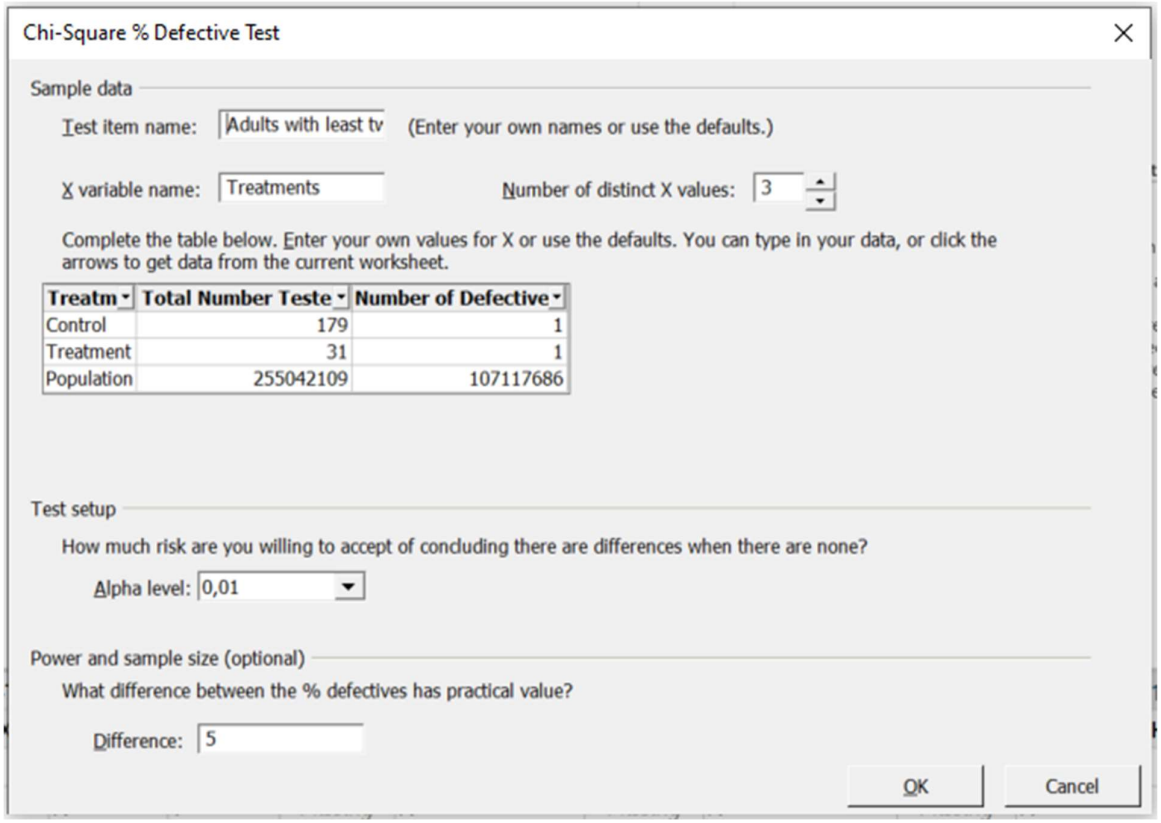
d = the difference between the proportions that has practical value. (1-Beta) displayed in %.





3.2.4. Chronic Conditions, Adults – At Least 2 Chronic Conditions

Data entry:



Summary reports

Chi-Square % Defective Test for Adults with At Least Two Chronic Conditions by Treatments
Diagnostic Report

Number of Defective and Nondefective Items

Treatments	Defective Observed	Defective Expected	Nondefective Observed	Nondefective Expected
Control	1*	75,2	178	104
Treatment	1*	13,0	30	18,0
Population	107117686	107117600	147924423	147924509

* Indicates a violation.

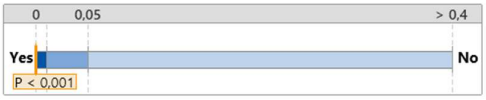
- To ensure validity of the test, the expected number of defectives and nondefectives should be at least 1,5.
- To ensure validity of the comparison intervals, the observed number of defectives and nondefectives should be at least 5.

Chi-Square % Defective Test for Adults with At Least Two Chronic Conditions by Treatments
Report Card

Check	Status	Description
Validity of Test	✓	All samples are large enough to obtain sufficient expected counts. The p-value for the test should be accurate.
Validity of Intervals	!	The number of defectives or nondefectives for one or more samples is less than 5. The comparison intervals may not be accurate. Use the table on the Diagnostic Report to identify low counts. As the number of defectives and nondefectives increases, the accuracy of the comparison intervals increases.
Sample Size	✓	The sample is sufficient to detect differences among the % defectives. Because you entered a difference of interest, the Power Report provides a sample size evaluation for this difference. You do not need to be concerned that the power is low because the test detected a difference.

Chi-Square % Defective Test for Adults with At Least Two Chronic Conditions by Treatments
Summary Report

Do the % defectives differ?

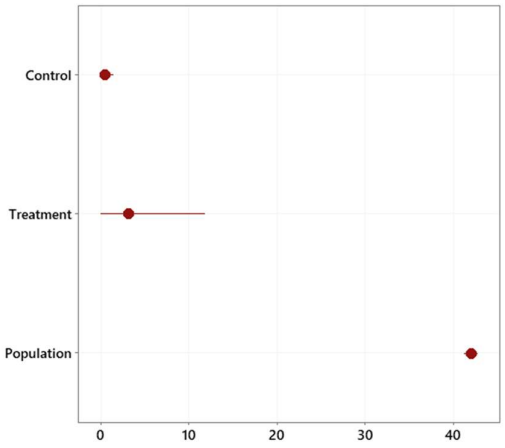


Differences among the % defectives are significant (p < 0,01).

Which % defectives differ?

#	Treatments	Differs from
1	Control	3
2	Treatment	3
3	Population	1 2

% Defectives Comparison Chart
Red intervals that do not overlap differ.



Comments

- Test: You can conclude that there are differences among the % defectives at the 0,01 level of significance.
- Comparison Chart: Look for red comparison intervals that do not overlap to identify % defectives that differ from each other. Consider the size of the differences to determine if they have practical implications.

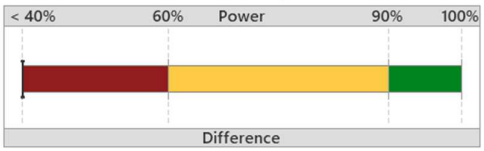
Control: entirely unvaccinated, no treatments
Treatment: all 3 combinations of maternal vaccination and vitamin K-shot
Population: vaccine-exposed (post-birth) US population

Precision Intervals:
Control = (0,00; 1,45)
Treatment = (0,00; 11,79)
Population = (41,25; 42,75)

Chi-Square % Defective Test for Adults with At Least Two Chronic Conditions by Treatments

Power Report

What is the chance of detecting a difference of 5?



Based on your samples and α level (0,01), the chance of detecting a difference of 5 ranges from 1,68% to 7,64%.

What sample sizes are required to detect a difference of 5?

All Samples	Power
1901	60%
2255	70%
2706	80%
3397	90%

Power is a function of the sample sizes and the % defectives. If the power is not satisfactory, consider increasing the sample sizes.

Statistics

Treatments	Number Tested	Defectives	% Defective	Individual 99% CI
Control	179	1	0,56	(0,00; 4,08)
Treatment	31	1	3,23	(0,02; 21,63)
Population	2,55042e+08	107117686	42,00	(100,00; 100,00)

Increase Risk of at least two chronic conditions according to exposure:[16]

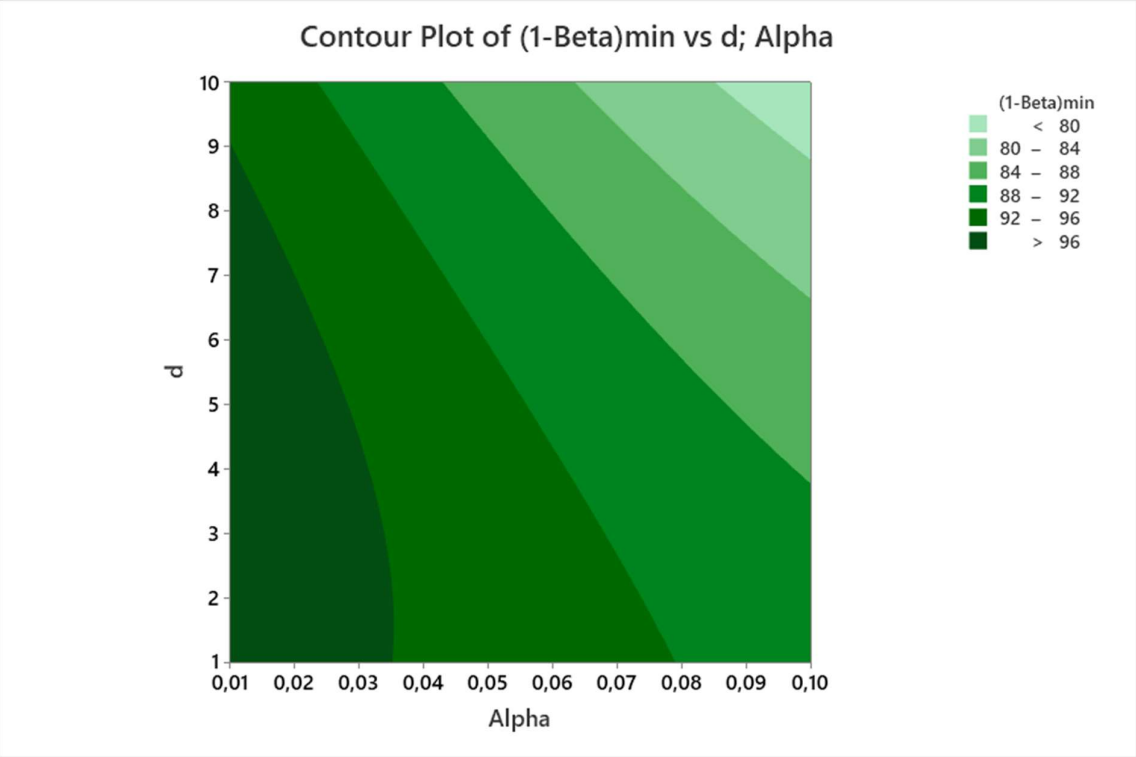
- From Control (entirely unvaccinated) to Treatment (maternal vaccination and/ or K-shot) = (3,23 – 0,56) / 0,56 *100% = **477%**
- From Treatment (maternal vaccination and/ or K-shot) to Population (vaccine-exposed) = (42,00 – 3,23) / 3,23 * 100% = **1200%**
- From Control (entirely unvaccinated) to Population (vaccine-exposed) = (42,00 – 0,56) / 0,56 *100% = **7400%**

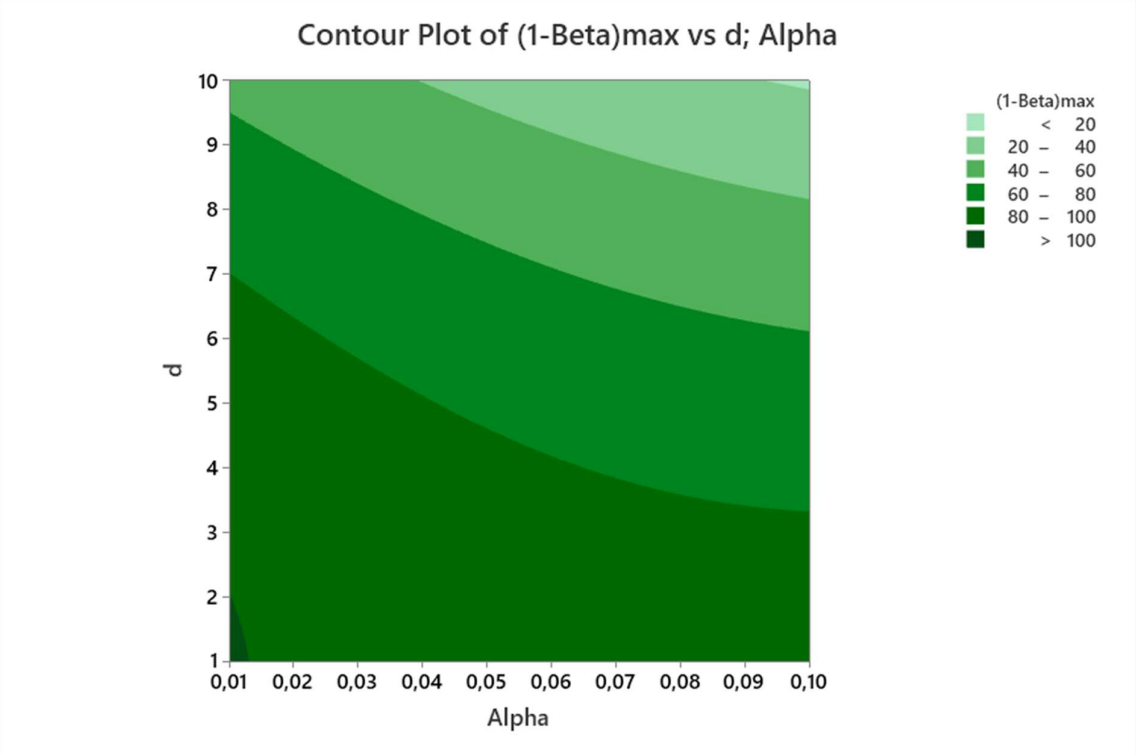
- Note: Group "Control" and Group "Treatment" merged gives group "All Unvaccinated (post-birth) Surveyed" = (2 / 210) * 100% = 0,95%. Increase risk from All Unvaccinated (post-birth) Surveyed to Population = (42,00 – 0,95) / 0,95 * 100% = **4321%**

[16] See both the accompanying Diagnostic Report and the Report Card for comments on validity.

Type I (Alpha) and Type II (1-Beta) Error Control

d = the difference between the proportions that has practical value. (1-Beta) displayed in %.





4. Bayesian Analyses

4.1. Assumptions and Basic Reasoning

In this section the Frequentist versus Bayesian view on probability is compared by using the example of flipping a coin[17]. One side has a head (H) and the other side has a tail (T). See figure 4.1.1 for details of this example. The question we want to answer is: What is the probability of getting a head?

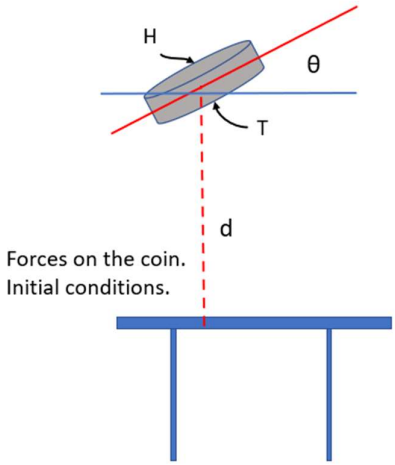
The Frequentist view on probability is P(h) = relative frequency of a head, if flipping in long series of "identical flips", an infinite number of times. We count the number of heads and divide by the number of throws. *P(h) = # heads / # throws*. We assume the data are a random sample and are free to vary. The things that are fixed in the frequentist case are the parameters.

What do we mean with "fixed parameters" and "identical flips"? Imagine we have a coin above a table and we have a certain orientation of that coin to the table (θ) and perhaps a certain distance away from a particular point of the table (d). If we were to repeat this process exactly then surely, because the system is in itself deterministic (governed by physical laws), we would actually get a certain value of that coin every single time. So we already can see that we are running into some issues with the frequentist view on probability in that what we mean with "identical flips". Perhaps we can define "identical" somewhat more loosely and just say, if we kept the coin a certain distance above the table and we are free to vary the orientation of the coin to the table. But again we are running into this sort of subjective view of what do we exactly mean with "identical".

In the Bayesian approach the probability of head *P(h) = number of heads / total number of possibilities*. This definition assumes that all possibilities are equally likely. What do we mean with "possibility" and "number of heads" in this example? We could think about all the different orientations of the coin to the table, defined by the angle theta (θ) and the distance (d). And we could imagine enumerating each of this different angles and distances and look at the forces on the coin and combine these with the initial conditions. We can ask, what value (H or T) at each of these initial conditions would eventually appear on the coin? This would be based on the deterministic forces. So the "total number of possibilities" represents the total number of initial conditions. The number of heads just represents the frequency of heads which actually come out across all of the different possibilities. In this example we assume the data is fixed. This means if we have certain initial conditions then the value we get out of the coin is always going to be exactly the same. The reason that we actually do get a variance of the value of the coin, i.e. some heads and some tails, is because the parameters vary. The probability here doesn't represent a long run frequency. It represents a kind of uncertainty over the initial conditions, because we don't know the initial conditions exactly. The Bayesian view on probability doesn't rely on a series of an infinite number of samples from a population.

[17] https://www.youtube.com/watch?v=YsJ4W1k0hUg Ben Lambert (researcher at Imperial College London)

In summary, in the Frequentist view the data vary and the parameters are fixed. In the Bayesian view the data are fixed and it is that the parameters vary. So actually in the Bayesian case, the probability of a head has a probability distribution. The same is true for the probability of a tail.



Frequentist

- P(h) = # heads / # throws. I.e. the relative frequency of head in long series of "identical" flips.
- Data vary. => uncertainty.
- Parameters fixed.

Bayesian

- P(h) = # heads / # possibilities => equally likely.
- Data is fixed.
- Parameters vary. => uncertainty.

Figure 4.1.1 Frequentist versus Bayesian View on Probability

The following example explains visually how the Bayesian conditional probability works in practice.[18]

A person called Bob is in a room and he has two coins. One fair coin and one double side coin. He picks at random, flips it, and shouts the result: "Heads". Now what is the probability that he flipped the fair coin? To answer this question, we need only rewind and *grow a tree*. The first event, he picks one of two coins, so our tree grows two branches, leading to equally likely outcomes, fair or unfair.

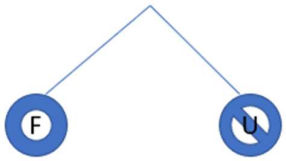


Diagram 4.1.2 First event

The next event, he flips the coin, we grow again. If he had the fair coin, we know this flip can result in two equally likely outcomes heads and tails, while the unfair coin results in two outcomes, both heads.

[18] https://www.khanacademy.org/math/statistics-probability/probability-library/conditional-probability-independence/v/conditional-probability2

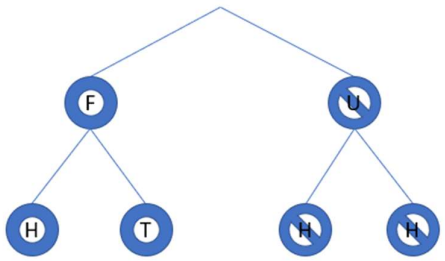


Diagram 4.1.3 Second event

Our tree is finished, and we see it has four leaves, representing four equally likely outcomes. The final step, new evidence. He says "heads". *Whenever we gain evidence, we must trim our tree*. We cut any branch leading to tails because we know tails did not occur.

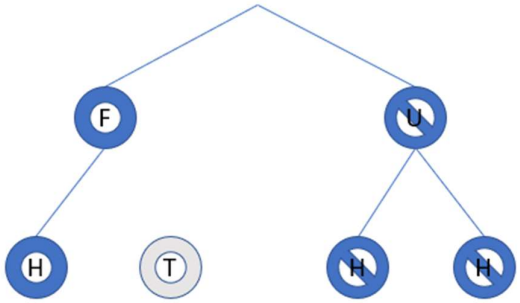


Diagram 4.1.4 Cut branch

So the probability he chose the fair coin is the one fair outcome leading to heads divided by the three possible outcomes leading to heads, i.e. 1/3.

$$P(\text{fair} \mid H) = \frac{H}{H \quad H \quad H}$$

Diagram 4.1.5 Bayes formula for the probability of a fair coin given heads occurred

What happens if he flips again and reports "heads"? Remember, after each event, our tree grows. The fair coin leaves result in two equally likely outcomes, heads and tails, the unfair leaves result in two equally likely outcomes, heads and heads.

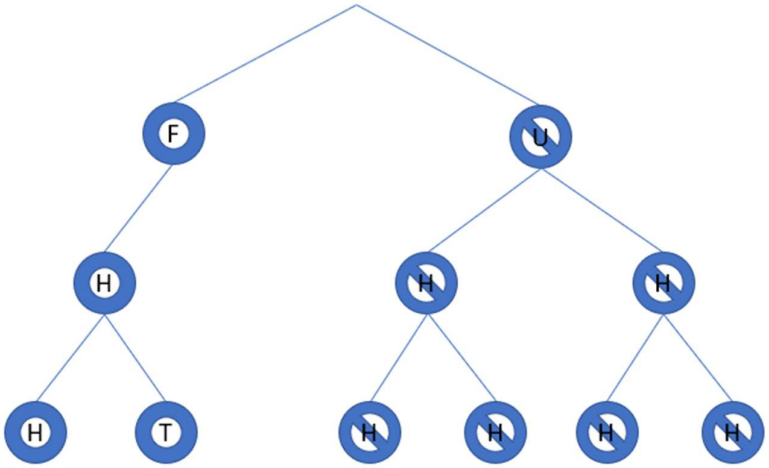


Diagram 4.1.6 Third event

After we hear the second “heads”, we cut any branches leading to tails.

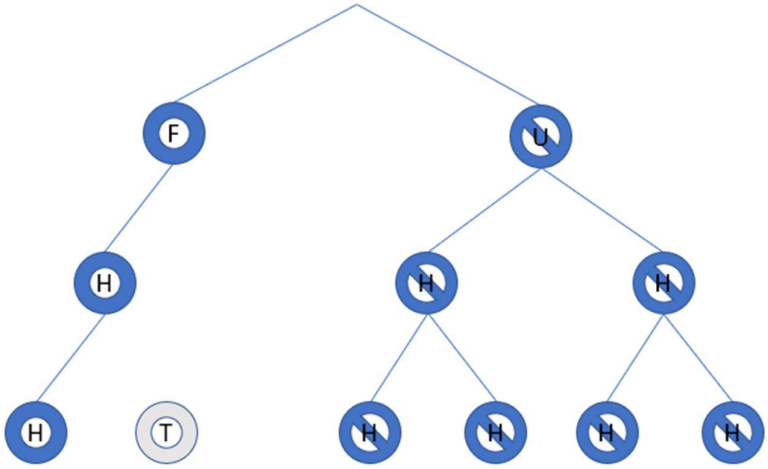


Diagram 4.1.7 Cut branch

Therefore, the probability the coin is fair after two heads in a row, is the one fair outcome leading to heads divided by all possible outcomes leading to heads, or 1/5.

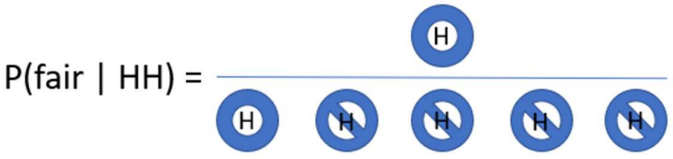


Diagram 4.1.8 Bayes formula for the probability of a fair coin given two heads occurred

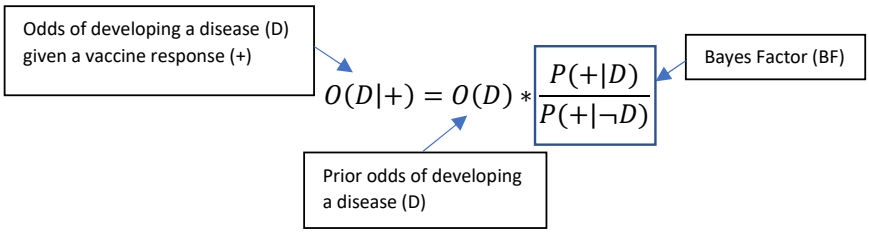
Notice our confidence in the fair coin is dropping as more heads occur, though realize that we'll never reach zero. No matter how many flips occur, we can never be 100% certain the coin is unfair. In fact, all conditional probability questions can be solved by growing trees. The trick is to always make sure the tree is balanced, meaning an equal amount of leaves growing out of each branch. To do this, we simply scale up the number of branches to the least common multiple.

Bayes Theorem:

$$P(A|B) = \frac{P(B|A) * P(A)}{P(B)}$$

, where we must compute P(B|A) for each possible value of A. Note that this results in a distribution that is not a valid probability distribution (area sum ≠ 1). P(A) is the prior distribution (our initial belief). Additional data model the posterior distribution P(A|B). The Bayes Theorem therefore is the only logical and consistent way to modify our beliefs to account for new data.

A different way of formulating the Bayes Theorem is in terms of odds. For an example relevant for the Control Group survey it looks as follows:



In the case of the survey by The Control Group, this means that this survey needs to be extended only to some extent if it turns out that the uncertainty about a particular conclusion is too small. So in such a case it is not necessary to conduct a new (larger) survey as a repeat sample!

4.2. Analyses

To investigate if the same conclusions can be drawn that result from the bar graphs in diagrams 1.1.and 1.2 the detailed stratification in tables 2.1 and 2.2 are not required. The stratification is limited to “Control”, “Treatment” and “Population”, similar to the analyses in section 3.2. However, with the Bayesian approach there is no such complication as “p-hacking” (see section 3.1). Subsequently, more than two samples must not be compared at once to avoid inflating the alpha-risk (type I error). We can therefore additionally merge “Control” and “Treatment” to “All Unvaccinated (Post-Birth)” and compare this proportion to “Population”. Because we want to monitor the evidence for the hypotheses that an intervention or treatment has either a positive effect, a negative effect or no effect we chose the Bayesian A/B test[19][20], which can be found in the option menu “Frequencies” of the statistical software JASP 0.14.0.0.

The input data needs to contain the following elements:

- Number of successes in group 1 (control condition)
- Number of trials in group 1 (control condition)
- Number of successes in group 2 (experimental condition)
- Number of trials in group 2 (experimental condition)

Note that “successes” in the survey means “disease reported”.

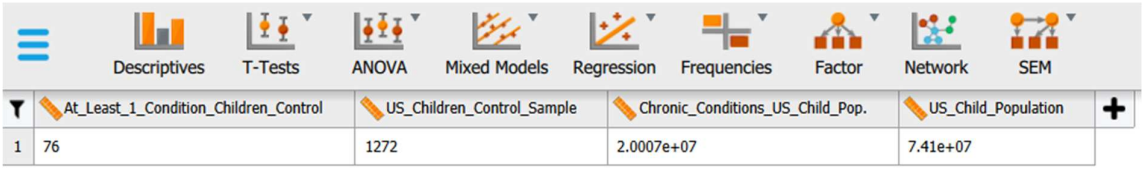
[19] Kass R. E. and Vaidyanathan S. K. (1992). Approximate Bayes Factors and Orthogonal Parameters, with Application to Testing Equality of Two Binomial Proportions. Journal of the Royal Statistical Society, Series B, 54, 129-144.

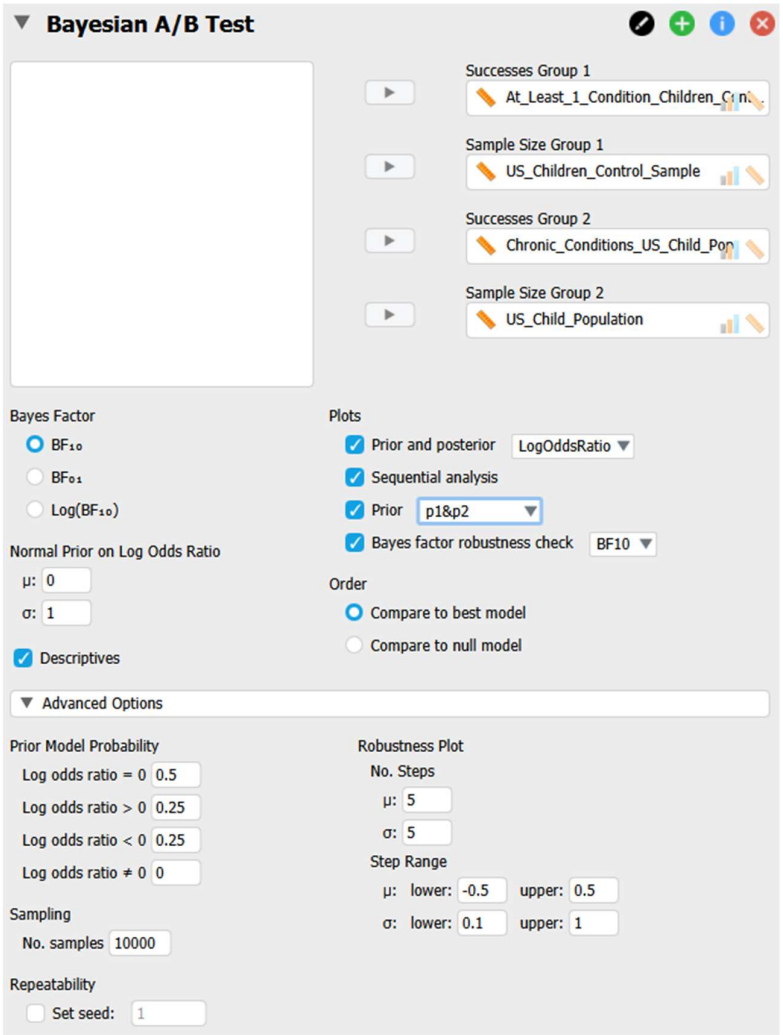
[20] Gronau Q. F., Raj K. N. A., Wagemakers E. J. (2019). Informed Bayesian Inference for the A/B Test. arXiv preprint arXiv:1905.02068.

4.2.1. Chronic Conditions, Children – At Least 1 Condition

Here the "Control" group is "Children in all unvaccinated (post-birth) surveyed reported with at least 1 condition".

Data entry.





Bayes Factor BF_{10} was selected to show evidence for the alternative hypothesis relative to the null hypothesis.

Normal Prior on Log Odds Ratio was chosen to be the standard normal distribution N(0,1). Robustness of this assumption was analysed using the Robustness Plot option.

Prior Model Probabilities were specified for the four hypotheses:

- Log odds ratio = 0 (H0): 0.5 - specifies that the "success" probability is identical (there is no effect)
- Log odds ratio > 0 (H+): 0.25 – specifies that the "success" probability in the experimental condition is higher than in the control condition.
- Log odds ratio < 0 (H-): 0.25 – specifies that the "success" probability in the experimental condition is lower than in the control condition.
- Log odds ratio ≠ 0 (H1): 0 – specifies that the "success" probability differs between the control and experimental condition, but does not specify which one is higher.

Sampling: the number of samples = 10000. This determines the number of importance samples for obtaining log marginal likelihood for (H+) and (H-) and the number of posterior samples.

Summary Report

Bayesian A/B Test ▾

Bayesian A/B Test

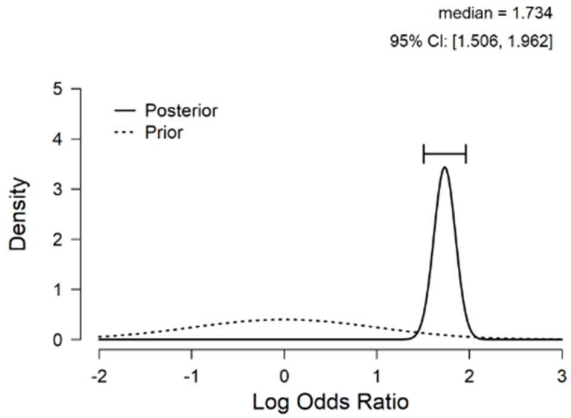
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	1.000	1.000
Log odds ratio = 0	0.500	3.136e −80	1.568e −80
Log odds ratio < 0	0.250	3.058e −83	3.058e −83

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

Descriptives

	Counts	Total	Proportion
Group 1	76	1272	0.060
Group 2	20007000	74100000	0.270

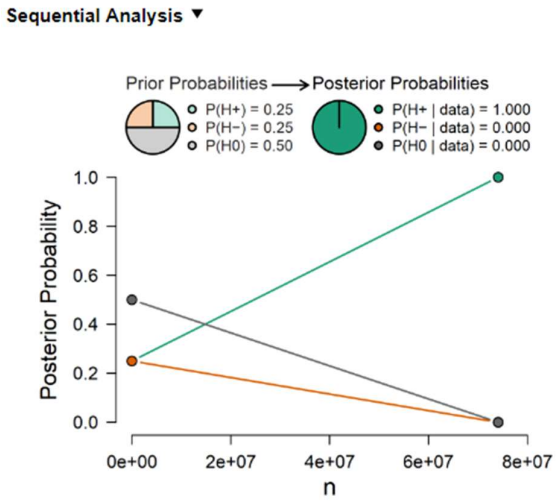
Prior and Posterior



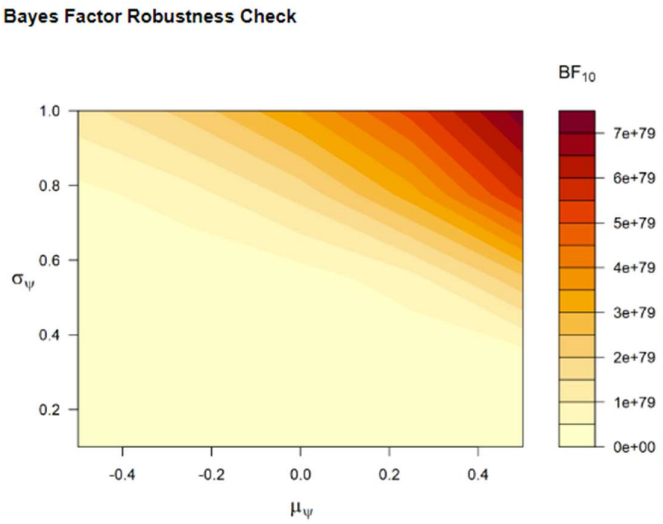
Model comparison (first table)

- Models: Hypotheses
- P(M): Prior model probabilities
- P(M|data): Posterior probabilities of the models considered
- BF_{10}: Bayes Factor

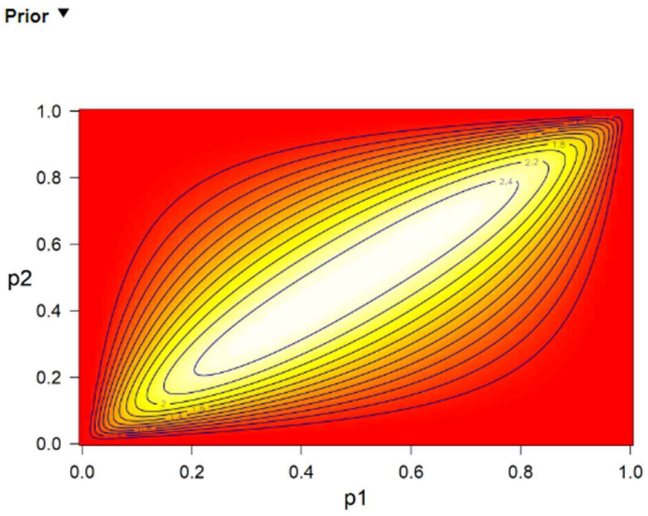
The Prior and Posterior Plot displays the prior and posterior density for the quantity of interest, i.e. the Log Odds Ratio. In addition, posterior median and central credible interval "95% CI" are also displayed.



The sequential analysis displays the development of posterior probabilities as the data come in. The probability wheels visualize prior and posterior probabilities of the hypotheses.



The Bayes Factor (BF_{10}) robustness check displays the prior sensitivity analysis.



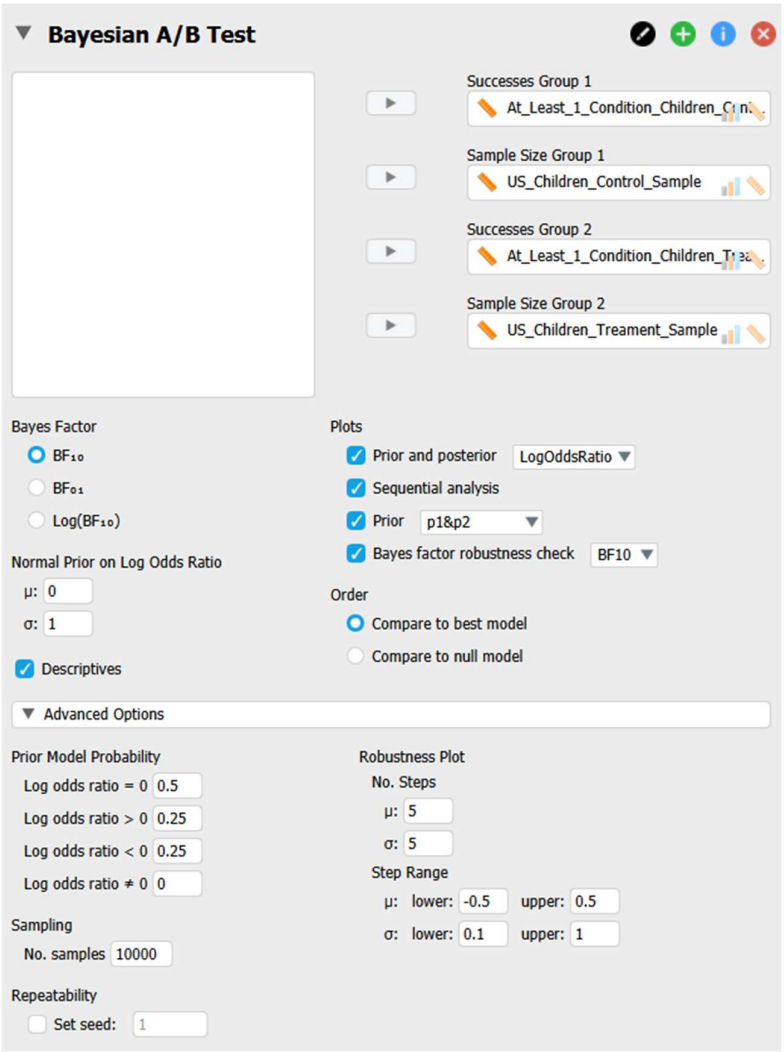
Parameter prior distributions p1 versus p2.

Conclusion

There is very strong evidence (probability =100%) that the disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of children is (0.27-0.0597)/0.0597 * 100% = **352%** higher than in the all unvaccinated (post-birth) surveyed children with at least 1 condition.

The next analyses are performed *within* the unvaccinated (post birth) control group of surveyed children with at least one condition. The differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") are quantified.

Data entry.



Comments to these data entries are the same as before.

Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

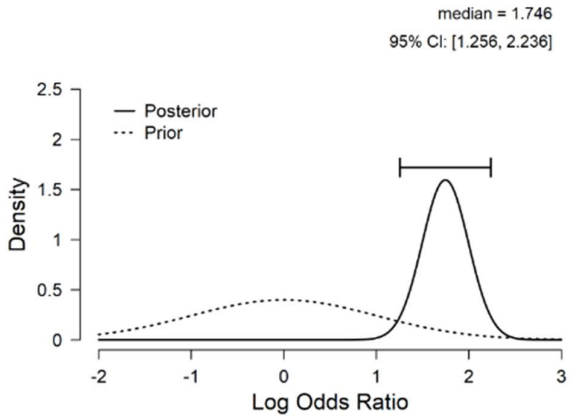
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	1.000	1.000
Log odds ratio = 0	0.500	5.122e−12	2.561e−12
Log odds ratio < 0	0.250	6.267e−14	6.267e−14

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

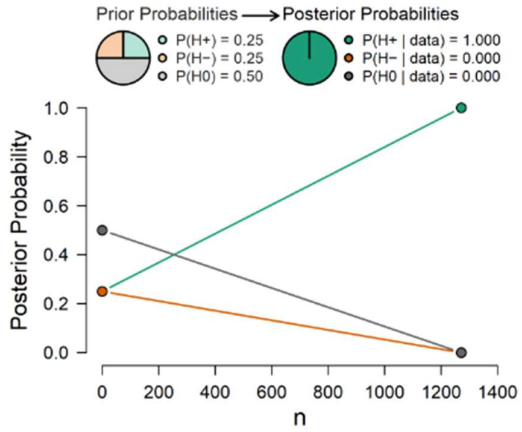
Descriptives ▼

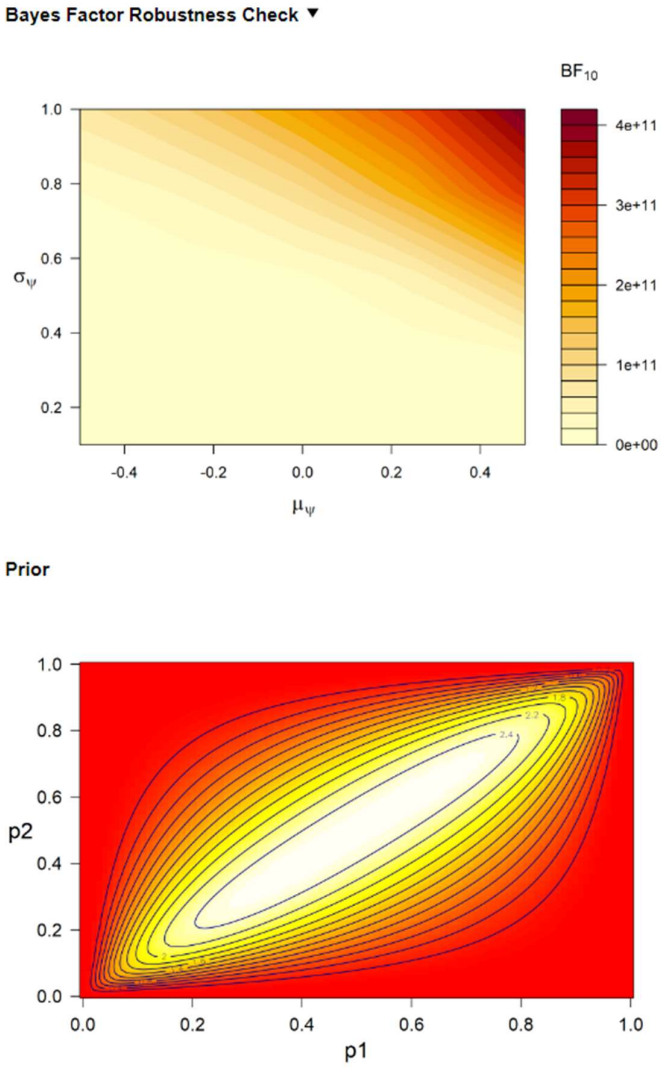
	Counts	Total	Proportion
Group 1	19	845	0.022
Group 2	57	427	0.133

Prior and Posterior



Sequential Analysis





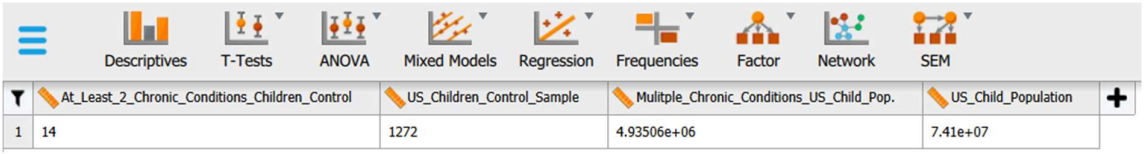
Conclusion

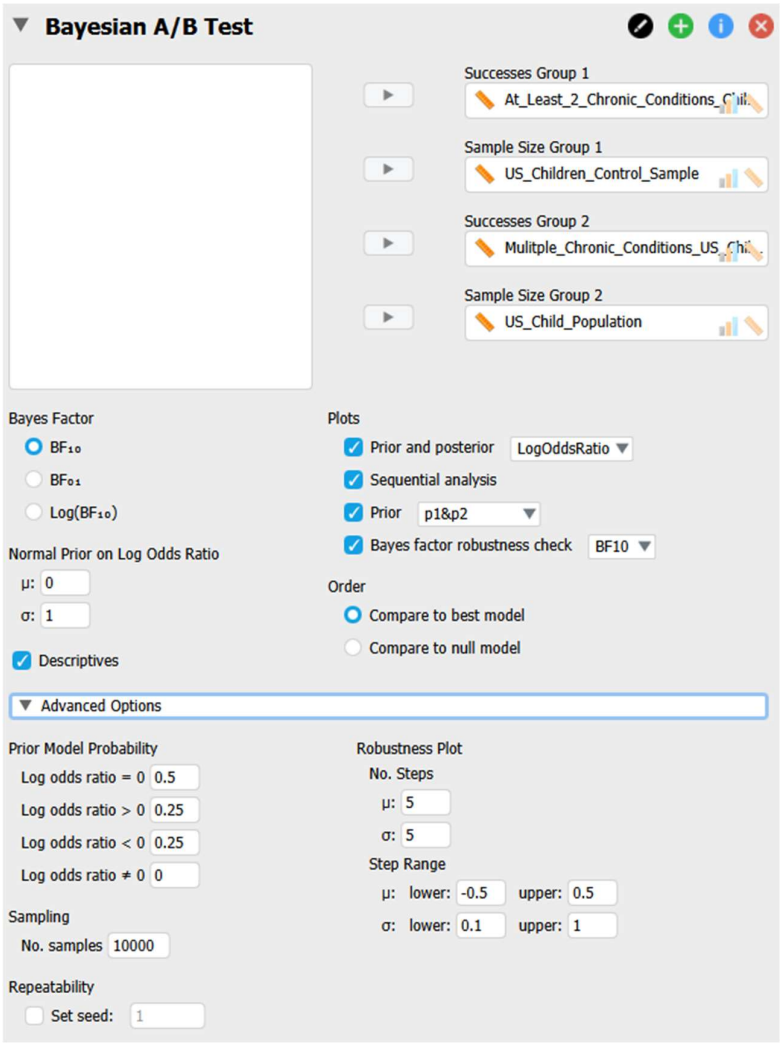
There is very strong evidence (probability = 100%) for surveyed children with at least one condition, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.1335-0.0225)/0.0225 * 100% = **493%** higher

4.2.2. Multiple Chronic Conditions, Children – At Least 2 Chronic Conditions

Here the "Control" group is "Children in all unvaccinated (post-birth) surveyed reported with at least 2 chronic conditions."

Data entry.





Comments to these data entries are the same as in section 4.2.1.

Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

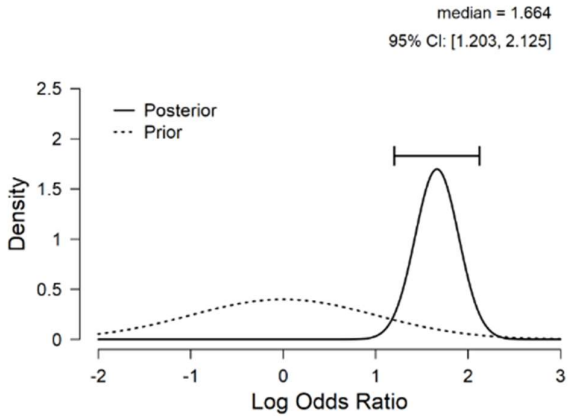
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	1.000	1.000
Log odds ratio = 0	0.500	1.301e −18	6.506e −19
Log odds ratio < 0	0.250	2.156e −21	2.156e −21

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

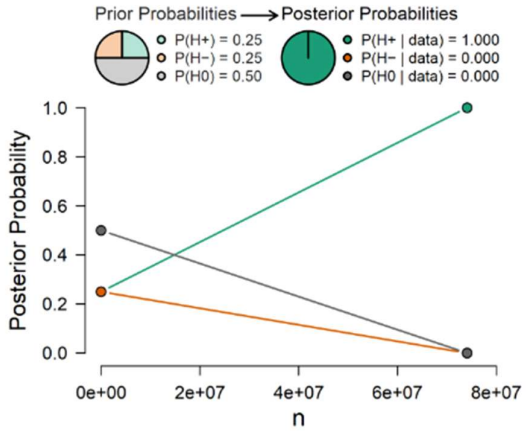
Descriptives ▼

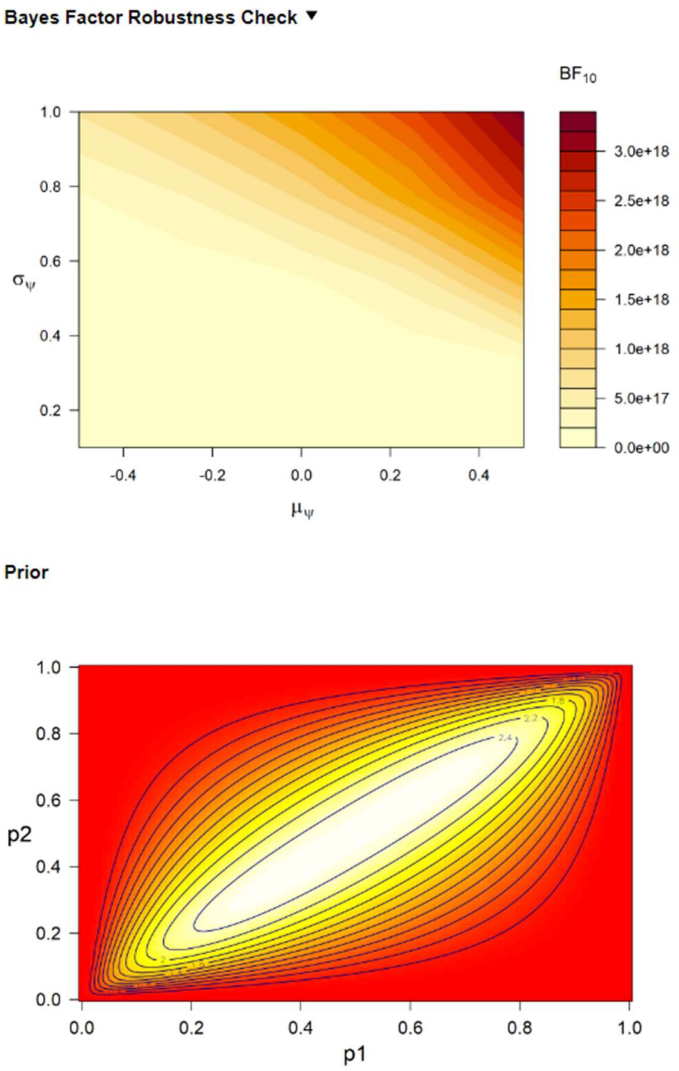
	Counts	Total	Proportion
Group 1	14	1272	0.011
Group 2	4935060	74100000	0.067

Prior and Posterior



Sequential Analysis ▼



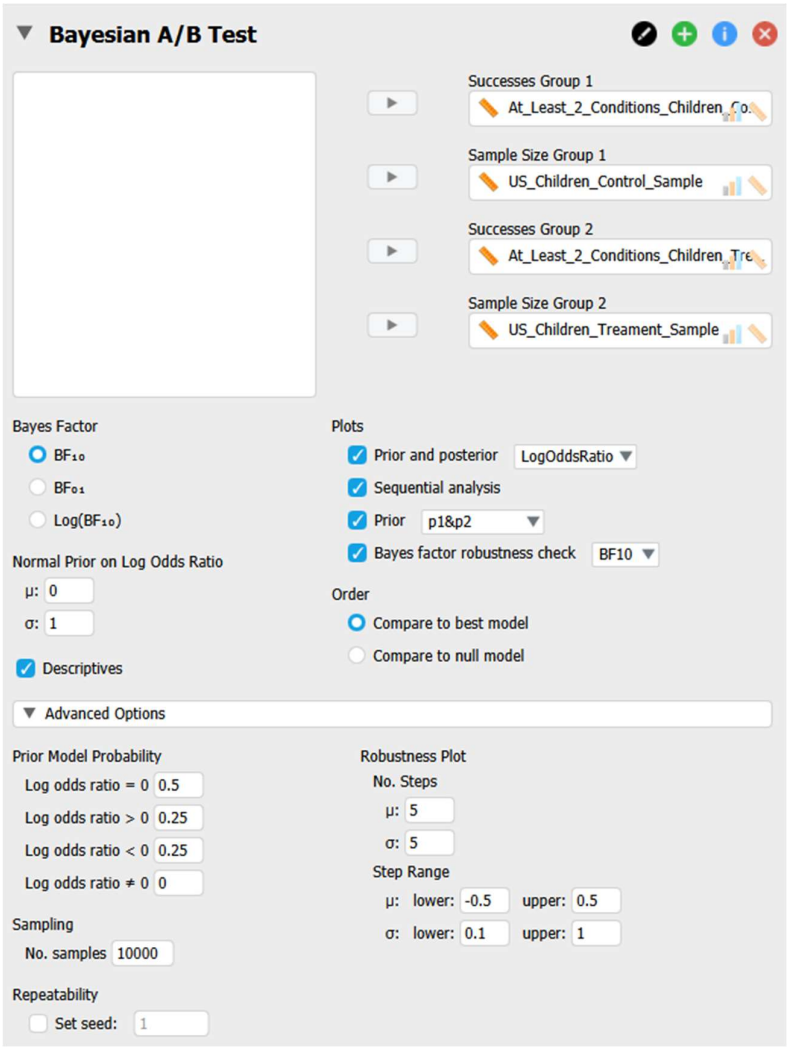


Conclusion

There is very strong evidence (probability = 100%) that the disease rate (multiple chronic conditions) in the vaccine-exposed (post-birth) US population of children is (0.0666-0.011)/0.011 * 100% = **505%** higher than in the all unvaccinated (post-birth) surveyed children with at least 2 chronic conditions.

The next analyses are performed *within* the unvaccinated (post birth) control group of surveyed children with at least 2 chronic conditions. The differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") are quantified.

Data entry.



Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

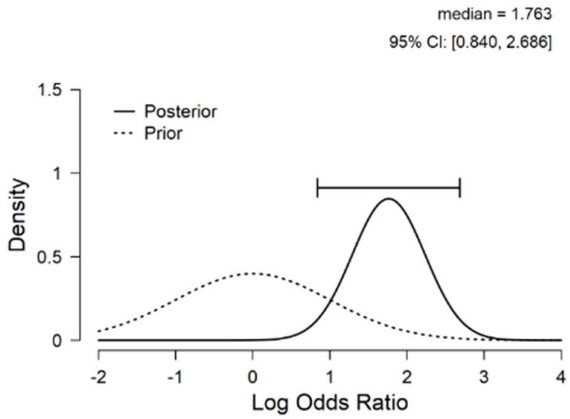
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	0.999	1.000
Log odds ratio = 0	0.500	0.001	5.153e −4
Log odds ratio < 0	0.250	4.364e −5	4.369e −5

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

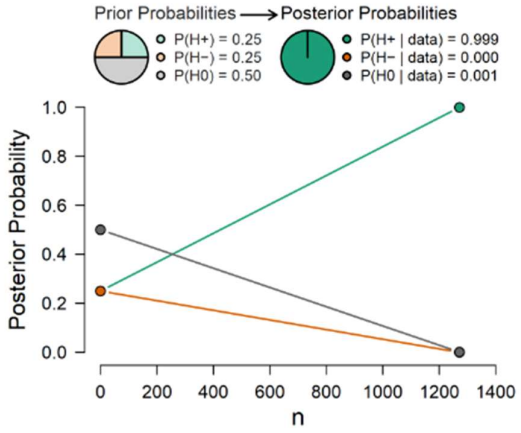
Descriptives

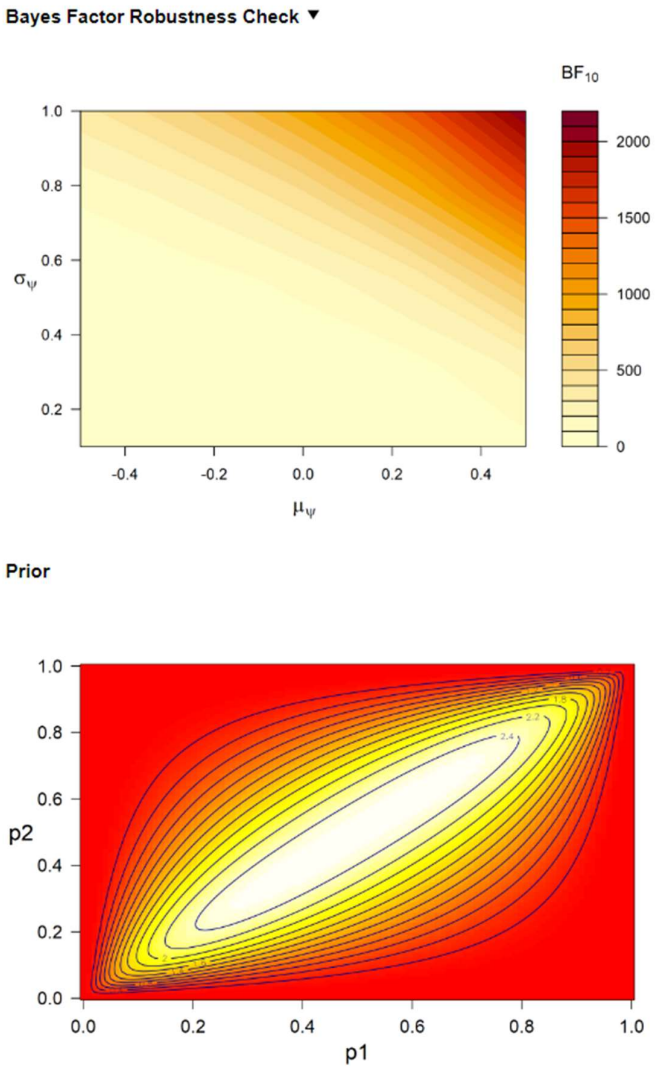
	Counts	Total	Proportion
Group 1	1	845	0.001
Group 2	13	427	0.030

Prior and Posterior ▼



Sequential Analysis ▼





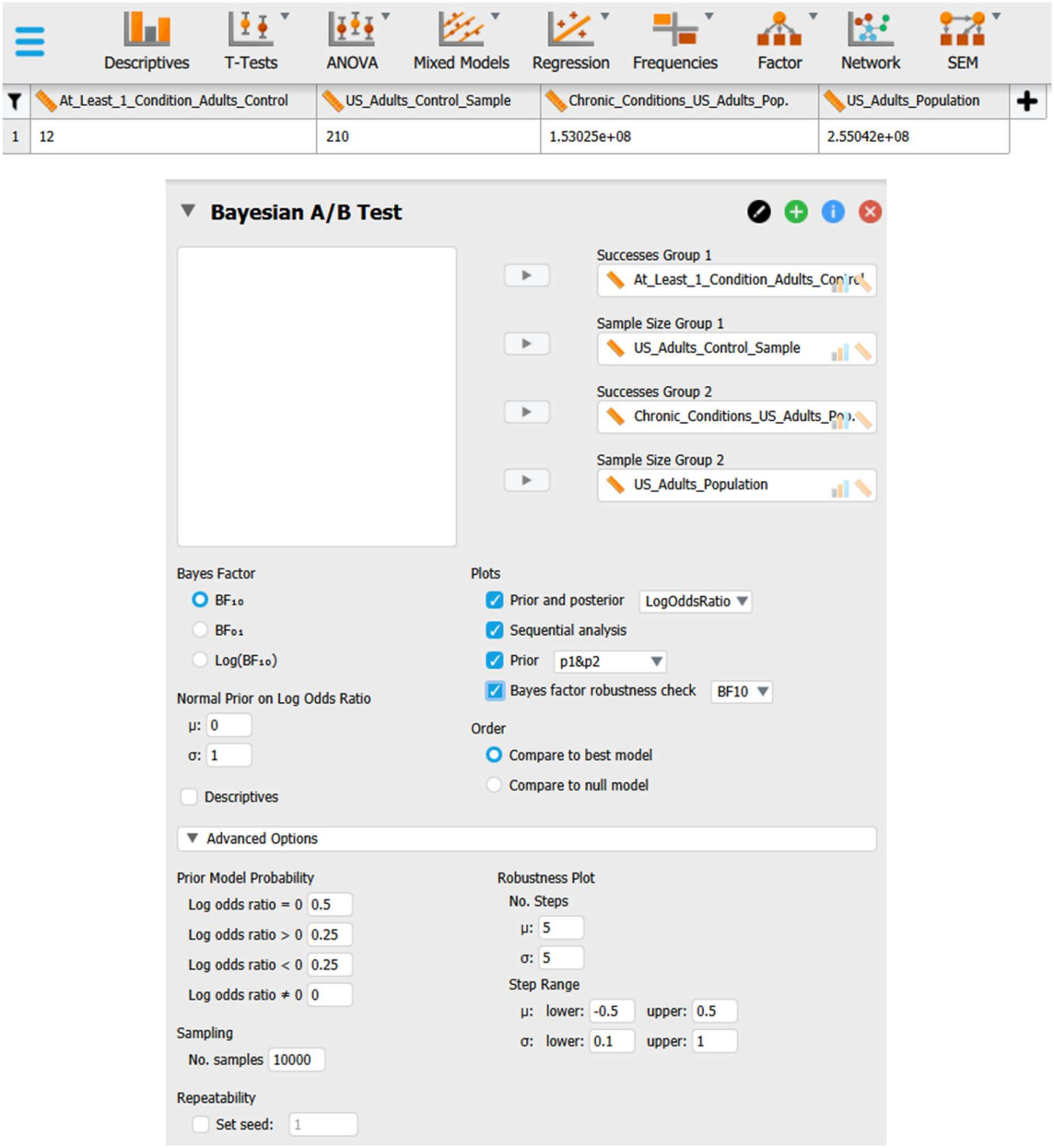
Conclusion

There is strong evidence (probability =99%) for surveyed children with at least 2 conditions, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.03044-0.00118)/0.00118 * 100% = **2480%** higher.

4.2.3. Chronic Conditions, Adults – At Least 1 Chronic Condition

Here the "Control" group is "Adults in all unvaccinated (post-birth) surveyed reported with at least 1 chronic condition."

Data entry.



Comments to these data entries are the same as in section 4.2.1.

Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

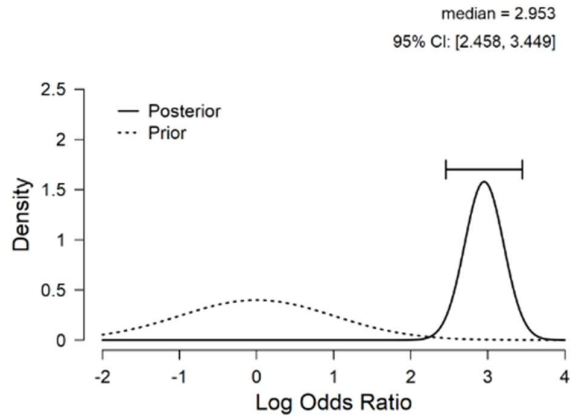
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	1.000	1.000
Log odds ratio = 0	0.500	1.210e −58	6.048e −59
Log odds ratio < 0	0.250	9.706e −62	9.706e −62

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

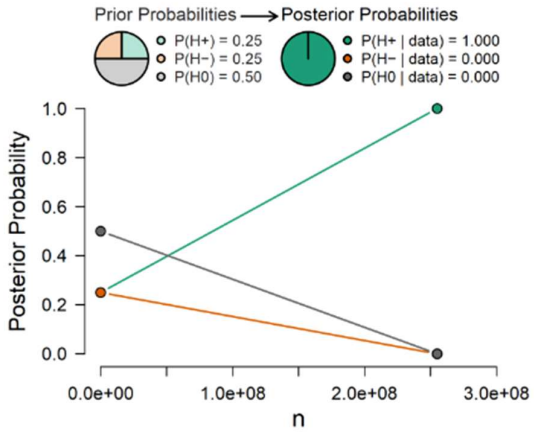
Descriptives

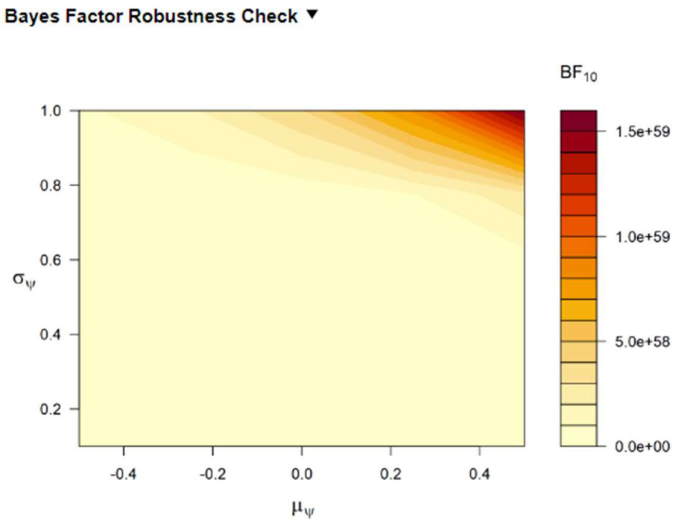
	Counts	Total	Proportion
Group 1	12	210	0.057
Group 2	153025265	255042109	0.600

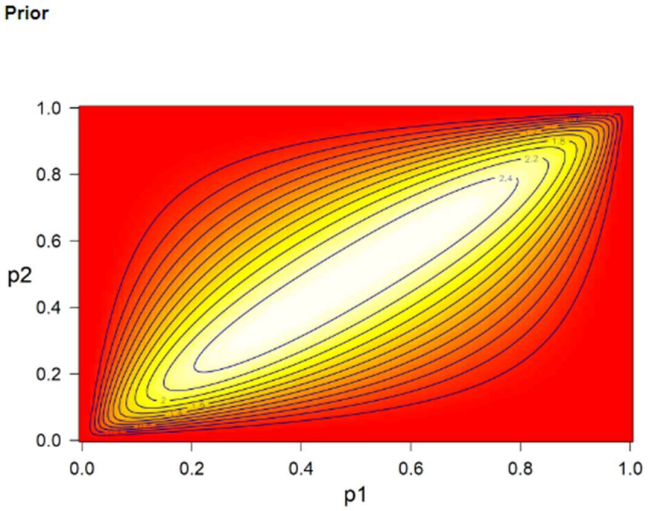
Prior and Posterior ▼



Sequential Analysis ▼





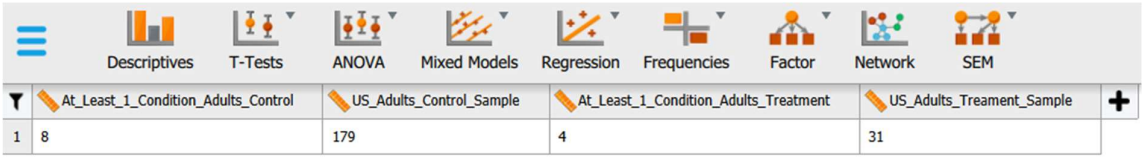


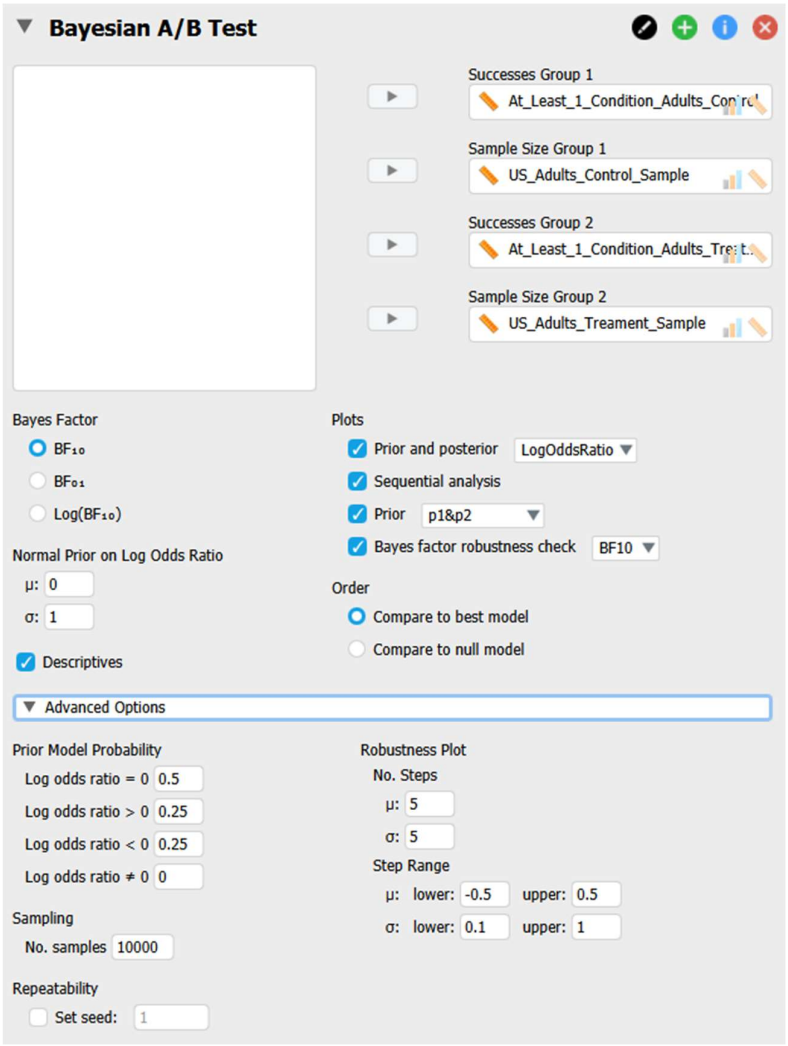
Conclusion

There is very strong evidence (probability = 100%) that the disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of adults is (0.60-0.0571)/0.0571 * 100% = **951%** higher than in the all unvaccinated (post-birth) surveyed adults with at least 1 chronic condition.

The next analyses are performed *within* the unvaccinated (post birth) control group of surveyed adults with at least 1 chronic condition. The differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") are quantified.

Data entry.





Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

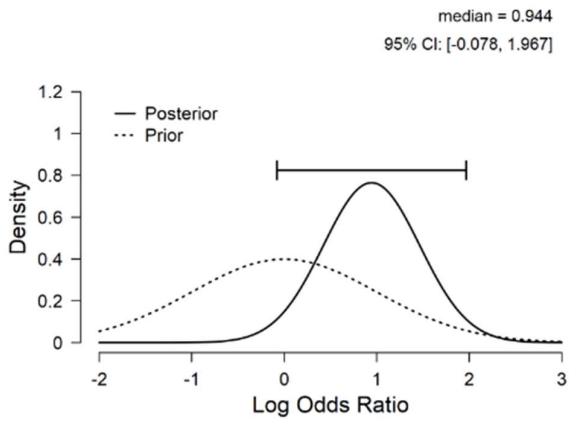
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	0.696	1.000
Log odds ratio = 0	0.500	0.274	0.197
Log odds ratio < 0	0.250	0.029	0.042

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

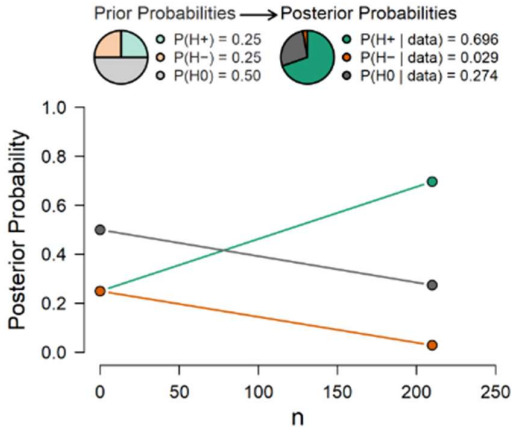
Descriptives

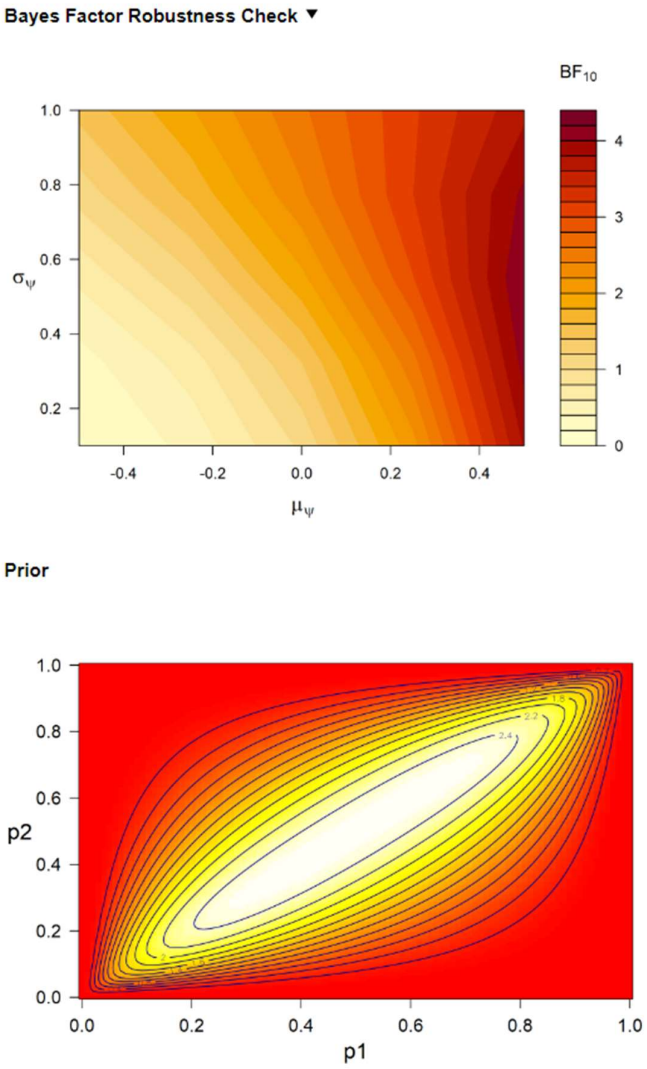
	Counts	Total	Proportion
Group 1	8	179	0.045
Group 2	4	31	0.129

Prior and Posterior ▼



Sequential Analysis ▼





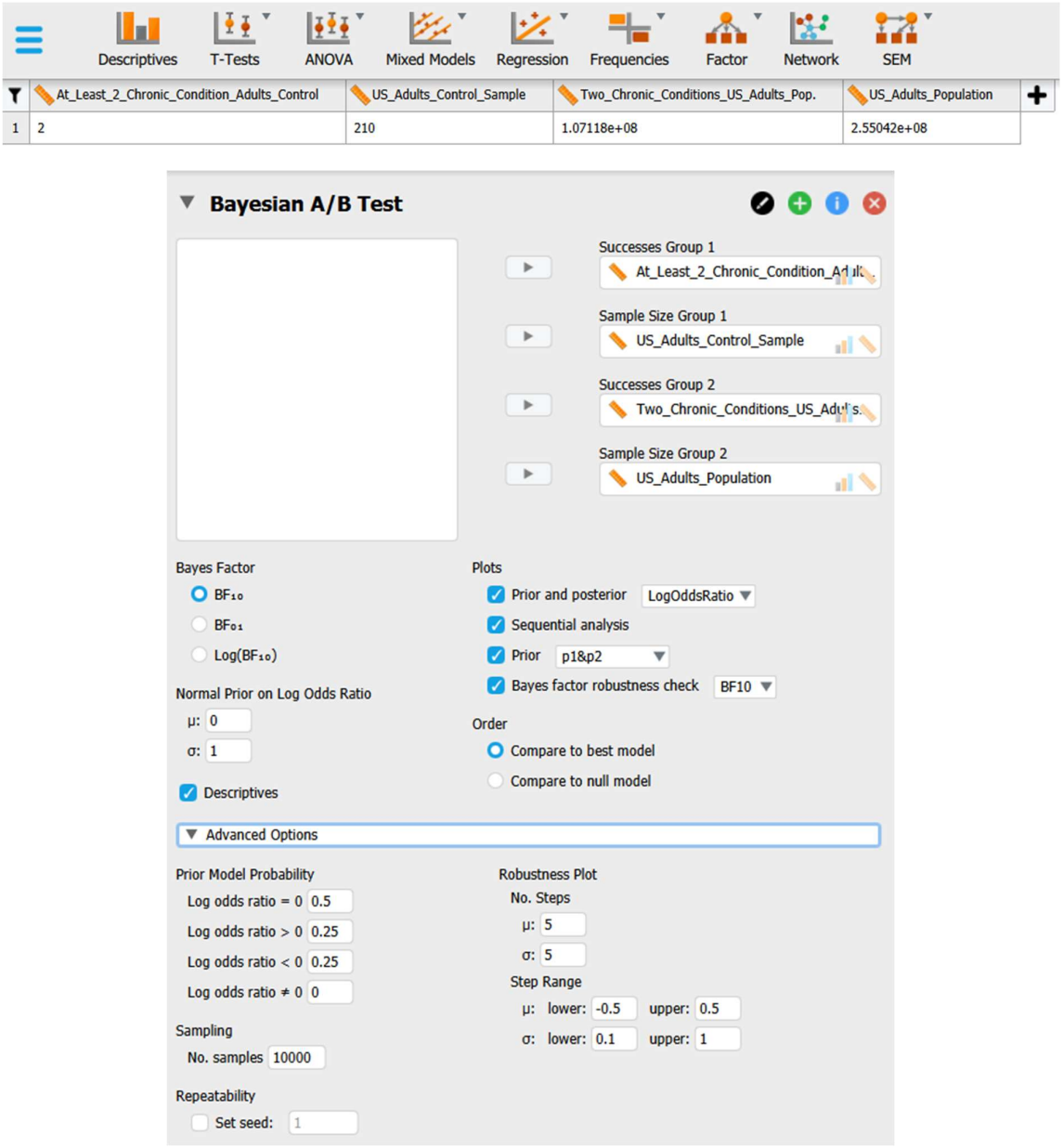
Conclusion

There is a probability of 69,6% for surveyed adults with at least 1 condition, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.129-0.04469)/0.04469 * 100% = **189%** higher. The probability of no difference is 27,4%. A reverse conclusion is with a probability of 2,8% unlikely.

4.2.4. Chronic Conditions, Adults – At Least 2 Chronic Conditions

Data entry.

Here the "Control" group is "Adults in all unvaccinated (post-birth) surveyed reported with at least 2 chronic conditions."



Comments to these data entries are the same as in section 4.2.1.

Summary report

Bayesian A/B Test ▾

Bayesian A/B Test

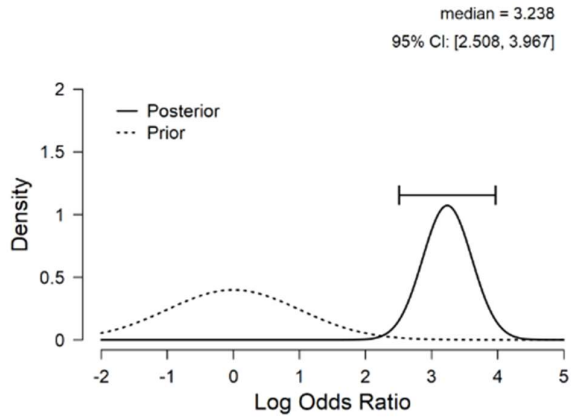
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	1.000	1.000
Log odds ratio = 0	0.500	1.317e −40	6.587e −41
Log odds ratio < 0	0.250	5.505e −44	5.505e −44

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

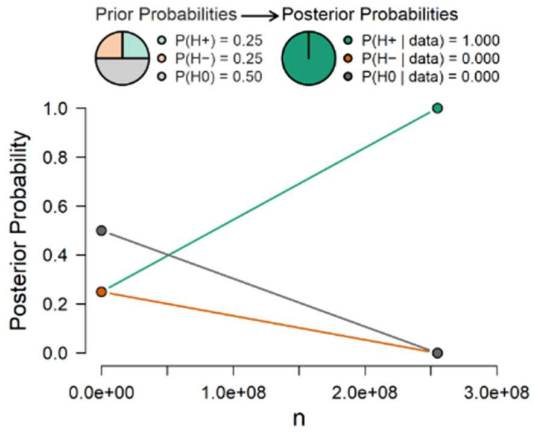
Descriptives

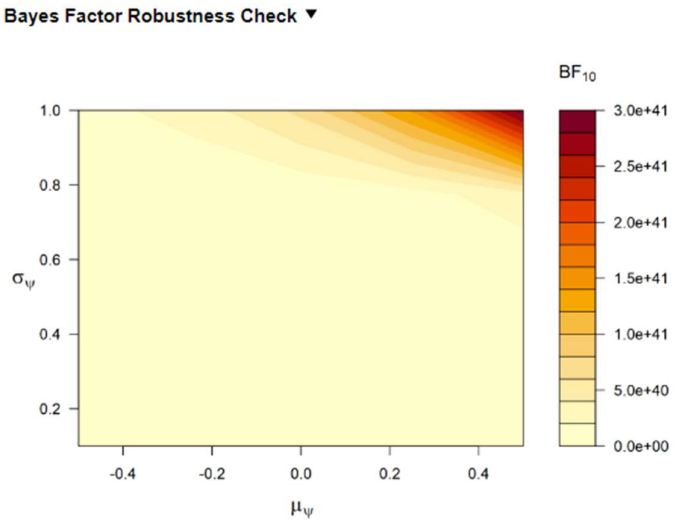
	Counts	Total	Proportion
Group 1	2	210	0.010
Group 2	107117686	255042109	0.420

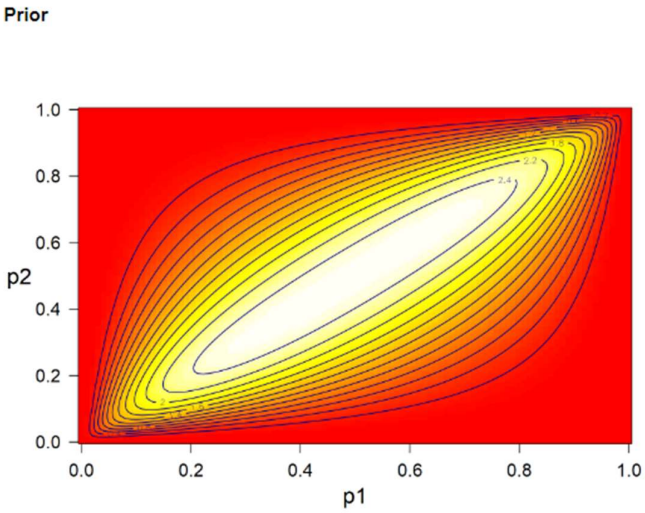
Prior and Posterior ▾



Sequential Analysis





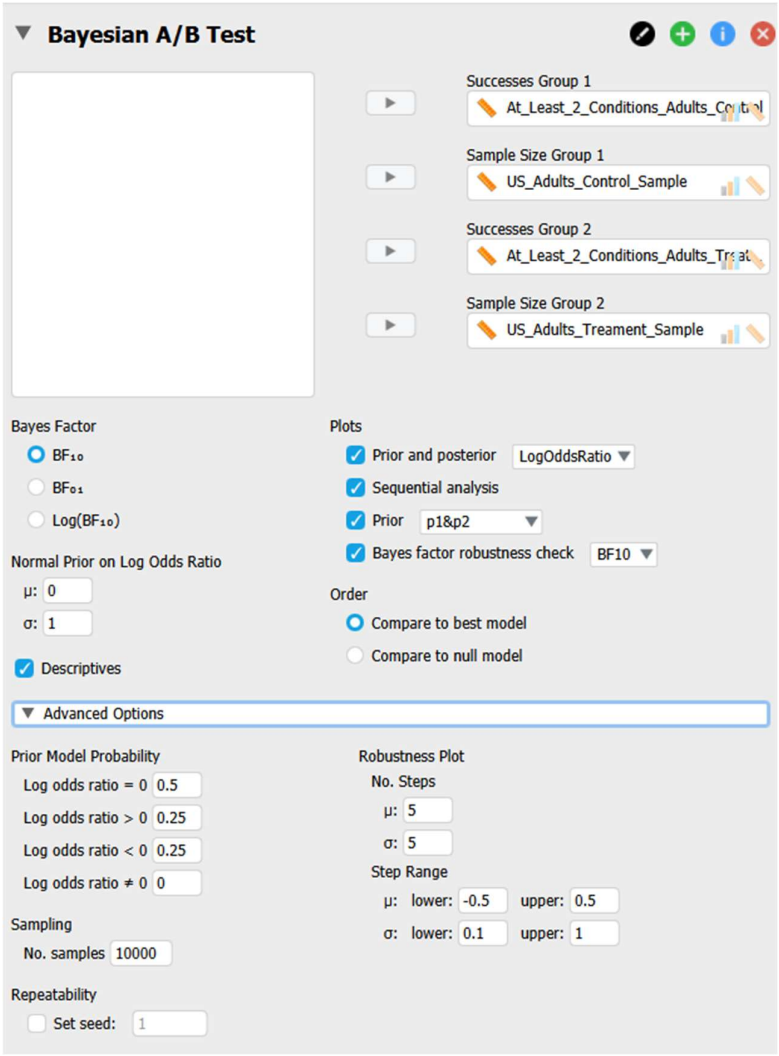


Conclusion

There is very strong evidence (probability = 100%) that the disease rate (two chronic conditions) in the vaccine-exposed (post-birth) US population of adults is (0.42-0.0095)/0.0095 * 100% = **4321%** higher than in the all unvaccinated (post-birth) surveyed adults with at least 2 chronic condition.

The next analyses are performed *within* the unvaccinated (post birth) control group of surveyed adults with at least 2 chronic conditions. The differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") are quantified.

Data entry.



Summary report

Bayesian A/B Test ▼

Bayesian A/B Test

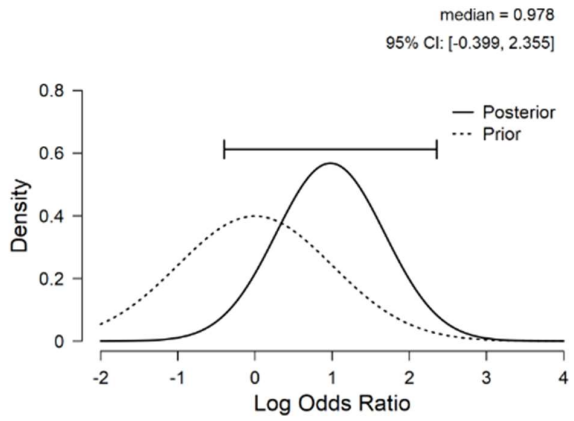
Models	P(M)	P(M|data)	BF_{10}
Log odds ratio > 0	0.250	0.608	1.000
Log odds ratio = 0	0.500	0.339	0.279
Log odds ratio < 0	0.250	0.053	0.088

Note. A positive log odds ratio means that the success rate in Group 2 is higher than in Group 1.

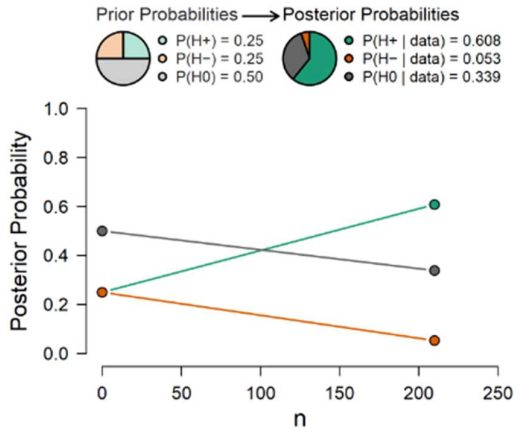
Descriptives

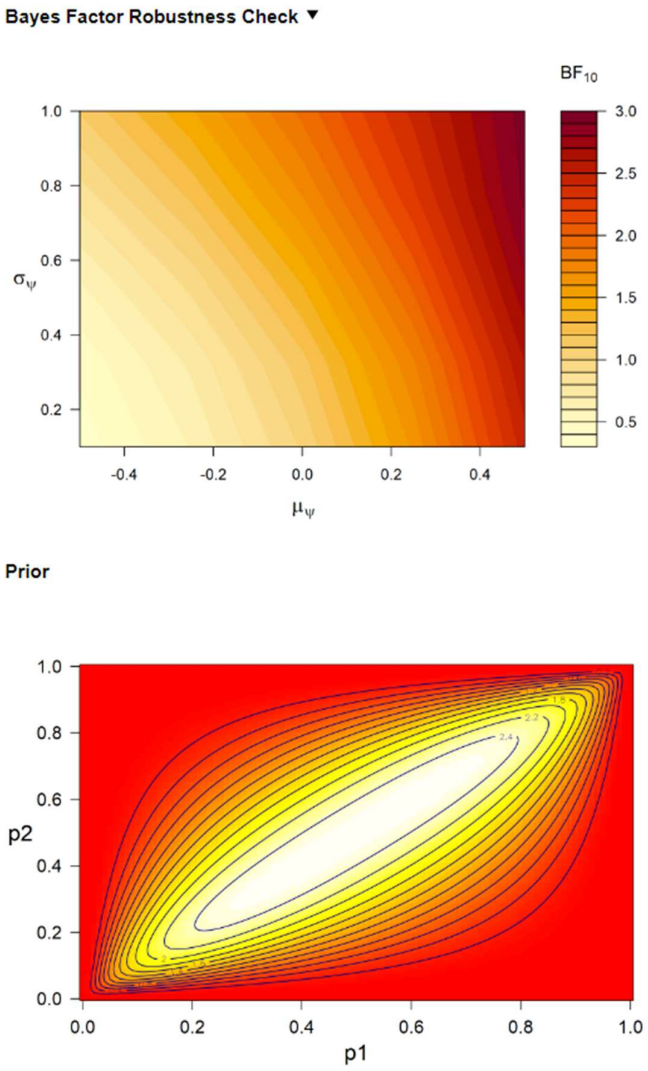
	Counts	Total	Proportion
Group 1	1	179	0.006
Group 2	1	31	0.032

Prior and Posterior ▼



Sequential Analysis ▼





Conclusion

There is a probability of 60,8% for surveyed adults with at least 2 conditions, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted "Control"), and those with exposure to one, or both of these drugs (denoted "Treatment") is (0.03226-0.005587)/0.005587 * 100% = **477%** higher. The probability of no difference is 33,9%. A reverse conclusion is with a probability of 5,3% unlikely.

5. Conclusions

The main conclusions from Exhibit C can be confirmed using two alternative statistical methods, the frequentist method on the one hand and the Bayesian method on the other.

- Risk factors are expressed in numbers (summarized in tables, diagrams and formulas)
- The differences in health outcomes between the population of entirely unvaccinated (proportion estimated from survey sample) and vaccine-exposed (US population proportion reported by CDC), are staggering. There is **very strong evidence, with a probability near 100%**, that
    - The disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of children is **352% higher** than in the all unvaccinated (post-birth) surveyed children with at least 1 condition.
    - The disease rate (multiple chronic conditions) in the vaccine-exposed (post-birth) US population of children is **505% higher** than in the all unvaccinated (post-birth) surveyed children with at least 2 chronic conditions.
    - The disease rate (chronic conditions) in the vaccine-exposed (post-birth) US population of adults is **951% higher** than in the all unvaccinated (post-birth) surveyed adults with at least 1 chronic condition.
    - The disease rate (two chronic conditions) in the vaccine-exposed (post-birth) US population of adults is **4321% higher** than in the all unvaccinated (post-birth) surveyed adults with at least 2 chronic condition.
- *Within* the unvaccinated (post birth) control group, the differences in health outcomes between those without the vitamin K-shot and/or maternal vaccines, and those with exposure to one, or both of these drugs, are also staggering.
    - There is **very strong evidence (probability = 100%)** for surveyed children with at least one condition, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted “Control”), and those with exposure to one, or both of these drugs (denoted “Treatment”) is (0.1335-0.0225)/0.0225 * 100 = **493% higher**.
    - There is **strong evidence (probability = 99%)** for surveyed children with at least 2 conditions, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted “Control”), and those with exposure to one, or both of these drugs (denoted “Treatment”) is (0.03044-0.00118)/0.00118 * 100 = **2480% higher**.
    - There is a **probability of 69,6%** for surveyed adults with at least 1 condition, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted “Control”), and those with exposure to one, or both of these drugs (denoted “Treatment”) is (0.129-0.04469)/0.04469 * 100 = **189% higher**. The probability of no difference is 27,4%. A reverse conclusion is with a probability of 2,8% unlikely.
    - There is a **probability of 60,8%** for surveyed adults with at least 2 conditions, that the difference in health outcomes between those without the vitamin K-shot and/or maternal vaccines (denoted “Control”), and those with exposure to one, or both of these drugs (denoted “Treatment”) is (0.03226-0.005587)/0.005587 * 100 = **477% higher**. The probability of no difference is 33,9%. A reverse conclusion is with a probability of 5,3% unlikely.

6. Recommendations for future scientific research

- To make the survey complete, it can be expanded in a targeted manner with the goal of filling in the missing data gaps. It is not necessary to do a completely new survey to repeat the frequentist sample. The conclusions from the Bayesian analyses are too conclusive for that!