Pfizer Model Manual Calculations – Examples

These examples are for people who had Pfizer COVID-19 vaccines for their first, second, and third doses. (Please refer to tables of assumptions for Pfizer calculator)

1. For a 30-39 year-old male, what is the chance of developing symptomatic infection if 10 percent of the population is infected over a 2 month period? Assume variant = Omicron

a) Not vaccinated

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Chance of symptomatic infection = 0.10 x 1.24 = **0.124 (12.4%)**

b) Had one dose of Pfizer COVID-19 vaccine (administered 3 weeks ago)

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Use protection from infection based on one dose of Pfizer vaccine 3 weeks ago of 34.2% from **Table S1**
- Chance of symptomatic infection = 0.10 x 1.24 x (1-0.342) = **0.081592 (8.2%)**

c) Had two doses of Pfizer COVID-19 vaccine (last dose 0 to 2 months ago)

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Use protection from infection based on 2 doses of Pfizer vaccine 0 to 2 months ago of 55.9% from **Table S1**
- Chance of symptomatic infection = 0.10 x 1.24 x (1-0.559) = **0.054684 (5.5%)**

d) Had two doses of Pfizer COVID-19 vaccine (last dose 2 to 4 months ago)

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Use protection from infection based on 2 doses of Pfizer vaccine 2 to 4 months ago of 21.6% from **Table S1**
- Chance of symptomatic infection = 0.10 x 1.24 x (1-0.216) = **0.097216 (9.7%)**

e) Had two doses of Pfizer COVID-19 vaccine (last dose 4 to 6 months ago)

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Use protection from infection based on 2 doses of Pfizer vaccine 4 to 6 months ago of 12.0% from **Table S1**
- Chance of symptomatic infection = 0.10 x 1.24 x (1-0.120) = **0.10912 (10.9%)**

f) Had three doses of Pfizer COVID-19 vaccine

- Start with 10% risk over 2 months from **Table S4**
- Multiply by the Relative Risk of infection in 30–39-year-old male from **Table S3** 1.24% (compared to 1% in the general population)
- Use protection from infection based on 3 doses of Pfizer vaccine (<2 months ago) of 64.0% from **Table S1**
- Chance of symptomatic infection = 0.10 x 1.24 x (1-0.640) = **0.04464 (4.5%)**

2. For a 30–39-year-old male with symptomatic COVID-19, what is the chance of dying from COVID-19?
Assume variant = Omicron

a) Not vaccinated

- From **Table S5** case fatality rate is 1.06/20,692
- Chance of dying from COVID = **0.0000512 (0.0051%)**

b) Had one dose of Pfizer COVID-19 vaccine (administered 3 weeks ago)

- From **Table S5** case fatality rate is 1.06/20,692
- Multiply by protection from death based in 1 dose of Pfizer 3 weeks ago from **Table S2** of 66.7%
- Chance of dying from COVID = 0.0000512 x (1-0.667) = **0.000017 (0.0017%)**

c) Had two doses of Pfizer COVID-19 vaccine (last dose 0 to 2 months ago)

- From **Table S5** case fatality rate is 1.06/20,692
- Multiply by protection from death based in 2 doses 0 to 2 months ago from **Table S2** of 73.6%
- Chance of dying from COVID = 0.0000512 x (1-0.736) = **0.0000137 (0.0014%)**

d) Had two doses of Pfizer COVID-19 vaccine (last dose 2 to 4 months ago)

- From **Table S5** case fatality rate is 1.06/20,692
- Multiply by protection from death based in 2 doses 2 to 4 months ago from **Table S2** of 73.6%
- Chance of dying from COVID = 0.0000512 x (1-0.736) = **0.0000137 (0.0014%)**

e) Had two doses of Pfizer COVID-19 vaccine (last dose 4 to 6 months ago)

- From **Table S5** case fatality rate is 1.06/20,692
- Multiply by protection from death based in 2 doses 4 to 6 months ago from **Table S2** of 50.4%
- Chance of dying from COVID = 0.0000512 x (1-0.504) = **0.0000258 (0.00258%)**

f) Had three doses of Pfizer COVID-19 vaccine

- From **Table S5** case fatality rate is 1.06/20,692
- Multiply by protection from death based in 3 doses of plus booster from **Table S2** of 88.3%
- Chance of dying from COVID = 0.0000512 x (1-0.883) = **0.000006 (0.006%)**

3. What are the chances that a 60-69 year-old female will:

a) Develop myocarditis if she gets COVID-19?

- From **Table S8** use myocarditis cases/patients
- Chance of developing COVID-19 related myocarditis = 1458/65,223 = **0.022 (2.2%)**

b) Die from COVID-19-related myocarditis (once diagnosed)?

- From **Table S8** use myocarditis deaths/patients
- Chances of dying from COVID-19-related myocarditis (before diagnosis) = 59/65,223= **0.000905 (0.09%)**

c) Developing myocarditis even if she hasn't had any vaccines and hasn't had COVID-19?

- From **Table S6** use myocarditis cases/million
- Background chances of developing myocarditis = 35.75/1,000,000 = **0.00003575 (0.004%)**

d) Die from myocarditis even if she hasn't had any vaccines and hasn't had COVID-19?

- From **Table S6** use myocarditis deaths/million
- Background chances of dying from myocarditis = 1.04/1,000,000 = **0.00000104 (0.0001%)**

e) Develop vaccine-related myocarditis from the first dose of Pfizer COVID-19 vaccine?

- From **Table S7** use myocarditis cases/million
- Chances of developing vaccine-related myocarditis = 4/1,000,000 = **0.000004 (0.0004%)**

f) Die from vaccine-related myocarditis from the first dose of Pfizer COVID-19 vaccine?

- From **Summary Table** case fatality rate of vaccine-related myocarditis is 0.17% (2/1,195)
- Chances of dying from vaccine-related myocarditis = 0.000004 x 0.0017 = **0.00000000669 (0.0000007%)**