

The FDA provided emergency use authorization of a second COVID-19 booster (fourth dose) for individuals over age 50 who want them.

The key question is what does this approval mean? Unfortunately, the question is clearer than the answer.

Some things are clear. One is if you are under age 50, then you do not qualify. That leaves individuals over age 50 left to make a decision.

A second is related to the fact that not everyone has had the first booster. If you have not had the first one, there is no second one. There is only a first booster that you can get.

Just under half of the population over age 18 who had the first two doses actually got a booster. For individuals over age 65 about 75% of that group got the initial series. Then two-thirds got the booster. So  $2/3$  times 75% means only 50% of that over 65 group is even eligible for a second booster.

The bottom line is that no one under age 50 needs to consider a second booster. Only about half the people over age 65 need to even consider doing so.

For those individuals between 50 and about 65 with no risk conditions, a booster makes little sense.

Therefore, the decision about a second booster really boils down to your age and physical condition. Individuals with immune problems or those who are being treated for cancer certainly should consider it.

For everyone else it becomes an individual decision. So far there is limited evidence of benefit. There were 13 severe cases in 9000 patients in Israel. That was down from what would have been 50 cases expected of those with only one booster. So the overall benefit was 37 fewer severe cases in 9000 patients.

There are other factors to consider in the decision. One is related to future mutations of the virus. In all likelihood there will be an Omicron specific vaccine in the future. It will be aimed at newer mutations of the virus but still be only a booster of the original.

Individuals could wait to get that one as a second booster. Alternatively, they could get the second booster now and then a third booster when the Omicron specific vaccine becomes available.

From a personal standpoint, I am over 65 and fairly healthy. My approach will be to wait and see the further data since the 9,000 cases in Israel is just the tip of the iceberg. By the time that data becomes available, we should know where we stand with a modified vaccine. That will allow me

to decide which one to use as the second booster..

The original two doses made great sense. The booster dose was a logical move to help support the immunity already obtained. The second booster becomes much more of an individual decision based upon a number of factors.

On April 5th the New England Journal of Medicine published follow up data on fourth vaccine doses from Israel. The initial data had shown decreased infection rates after a fourth dose. However, the numbers were small.

Further data showed that protection against infection continued at a maximum for four weeks after the fourth dose of vaccine. However, protection against infection appeared to disappear at about the 8 week point. Thus infection rates only decreased for about two months with the second booster.

The good news is that the decrease in severe infections appeared to continue out to at least the 8 week point. That decrease was from 4 cases per thousand to 1 case per thousand.

The bottom line is that the fourth dose of vaccine essentially protects 3 people out of every thousand from severe infection for at least 8 weeks.