

By David C. Wilson—April 16, 2021

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## Were COVID-19 Cases and Deaths in Free Fall Before the Vaccine?

### INTRODUCTION

This paper provides a quick summary of the timeline of COVID-19 vaccinations and the rapid decrease in COVID-19 cases and deaths in “Horry County and throughout South Carolina.” Considering the unstable behavior of COVID-19, the paper discusses the most recent downturn in South Carolina and Horry County relative to the percentage of people receiving the COVID-19 vaccine, with special emphasis on the sharp decrease when only a small percentage of the vaccine had been administered.

The charts (Figures 1, 4, 6, and 7) show the number of COVID-19 cases per week on January 9, 2021, and February 27, 2021. Between these two dates, cases decreased in South Carolina and Horry County from 40,268 (782/100K) and 1,972 (683/100K), respectively, to 10,132 (197/100K) and 776 (219/100K). This equates to a decrease of about 75% in South Carolina and 68% in Horry County.

The flow charts (Figures 2, 5, 8, and 9) show the number of COVID-19 deaths per week on January 16, 2021, and February 27, 2021. Deaths decreased in South Carolina and Horry County from 527 (10/100K) and 29 (10/100K), respectively, to 162 (3/100K) and 9 (3/100K). The dates shown are the ending date for that given week. Note to the reader: Showing the rates per 100K population depicts the true weight of the situation and enables valid comparisons to other states and counties, between states and counties, and so on. For

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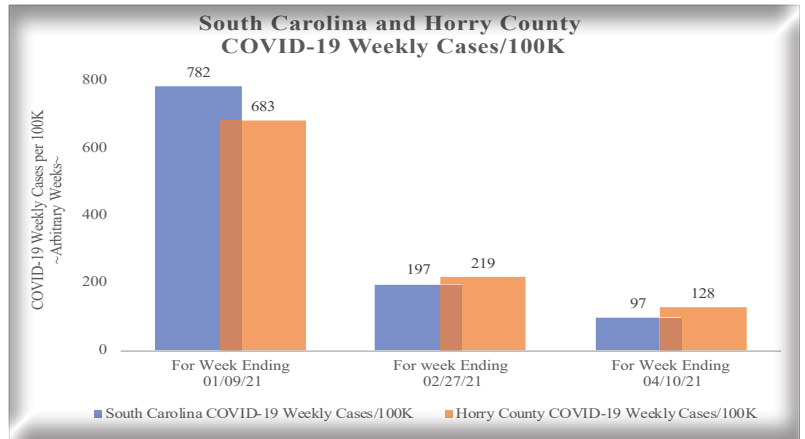


Figure 1. COVID-19 Weekly Cases/100K.

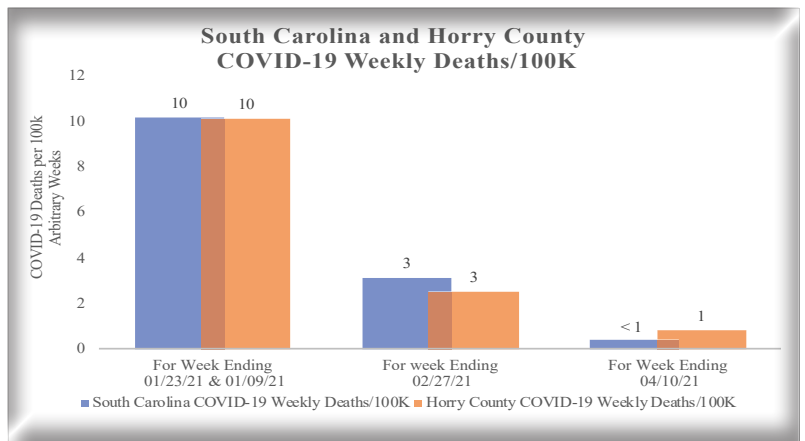


Figure 2. COVID-19 Weekly Deaths/100K.

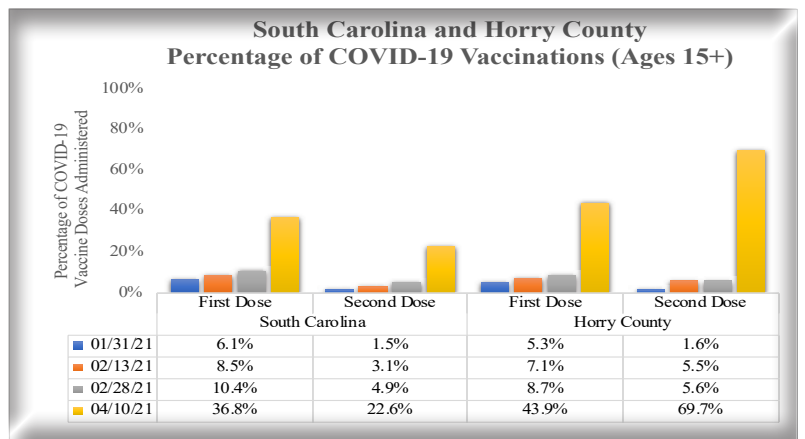


Figure 3. Percentage of COVID-19 Vaccine Doses Administered.

**Introduction**, *continued from previous page*

example, South Carolina and Horry County show distinct differences in the raw count of deaths; however, their rate of deaths per population is the same (Figure 2).

**COVID-19 CASES**

Let us examine the timeline for COVID-19 cases in South Carolina and Horry County by mapping figure 3 onto Figures 4, 6, and 7. Statewide, among people over 15 years old, only 10.4% had received the first dose of the vaccine and 4.9% had received the second dose by February 28, 2021. In Horry County during the same period, only 8.7% had received the first dose and 5.6% had received the second dose. However, weekly COVID-19 cases decreased by 74.8% in the state and 67.9% in the county from January 9, 2021, to February 27, 2021. This sharp decrease in COVID-19 cases began in earnest before a significant number of people had been vaccinated.

**COVID-19 DEATHS**

The same scenario is listed in the number of COVID-19 deaths in South Carolina and Horry County. Figure 3 is mapped onto Figures 2, 5, 8, and 9. Statewide, among people over 15 years old, only 10.4% had received the first dose of the vaccine and 4.9% had received the second dose by February 28, 2021. In Horry County during the same period, only 8.7% had received the first dose and 5.6% had received the second dose. However, weekly deaths from COVID-19 decreased by 69.3% in the state and 75.0% in the county from January 9, 2021, to February 27, 2021. This sharp decrease in COVID-19 deaths began in earnest before a significant number of people had been vaccinated. In fact, South Carolina's Phase I and Phase II vaccinations were not rolled out until March 8, 2021, and March 31, 2021, respectively.

**CONCLUSION**

The virus has exhibited unstable behavior since the beginning of the pandemic, as shown in Figures 6–9. Typically, a virus curve would have gradual smoothing (quadratic behavior), with periodic increases or decreases experienced in other complex systems and phenomena.

In the case of COVID-19, however, the curve is ramp-shaped and there is a sharp drop in cases and deaths. The virus has been radical and unstable for more than a year. Cases and deaths per week have ramped upward and sharply dropped.

Most people are very pleased that overall cases and deaths are decreasing and hope that the pandemic will soon become a thing of the past. However, as shown in this paper, the virus's pattern of behavior over the past year shows that the rate of vaccinations does not line up with the latest precipitous drop in COVID-19 cases and deaths from January 2021 to February 2021. This misalignment of the vaccine to the sharp decrease is worrisome. It is arguable that there is a reasonable degree of a mathematical certainty that COVID-19 cases and deaths were rapidly decreasing before the vaccine was injected in a significant number of people in South Carolina and Horry County. CDC director Dr. Rochelle P. Walensky and Dr. Anthony C. Fauci are not overly optimistic for a reason. From June 2020 to August 2020, a sharp rise and drop in cases and deaths occurred, which was similar to the pattern from December 2020 to January 2021. Because a vaccine now exists, our hope is that the vaccine and whatever other remedies are developed in the future will, to use Dr. Fauci's words, "keep the COVID-19 virus at bay."

I am not a medical professional; rather, I am a statistics practitioner who makes every effort, on a regular basis, to collect and analyze pertinent data that might be of interest to the public and to share my summaries in a format that is easily understood by the average person. ■

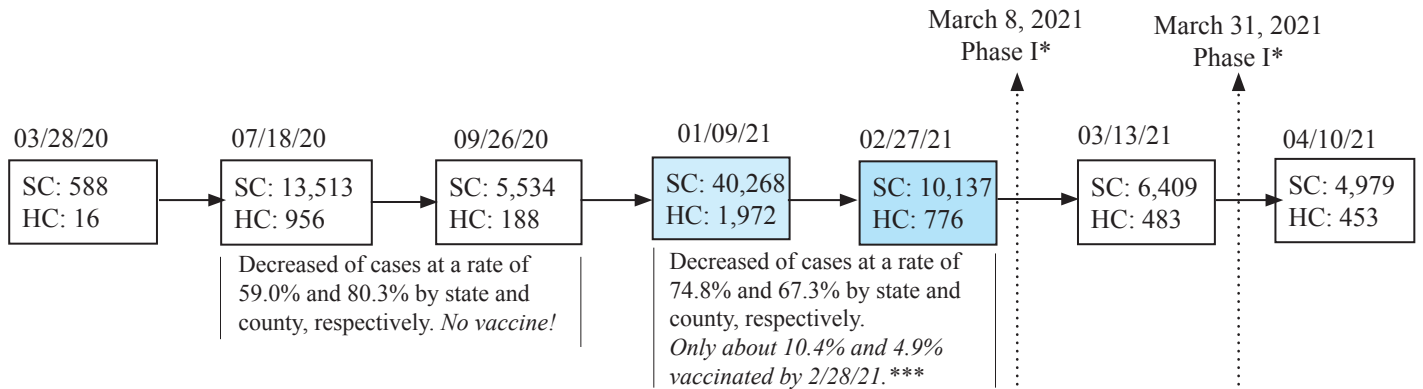


### Analysis of Timeline: COVID-19 Cases and Deaths

The flowcharts in Figures 4 and 5 depict a weekly timeline of COVID-19 cases and deaths in South Carolina and Horry County. Did the small percentage of vaccinations in December (2020) and January (2021) serve as a catalyst for the precipitous average drop of 70.2% in about six weeks? From March 13, 2021,

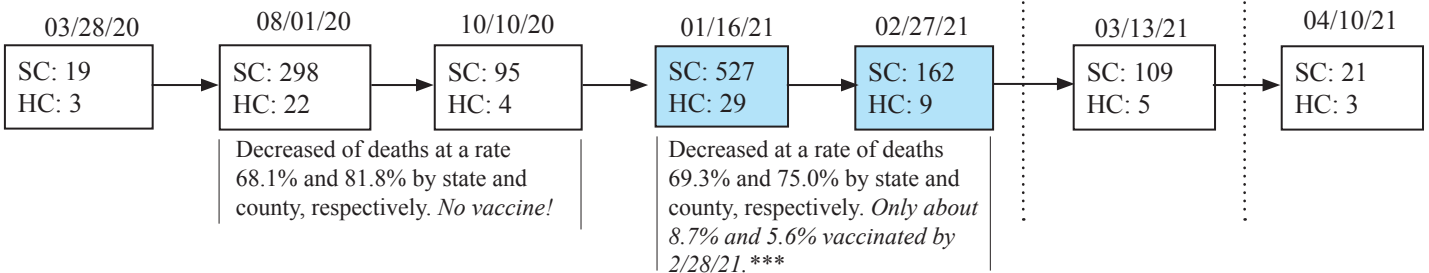
to March 27, 2021, the number of cases essentially remained flat in spite of a much larger percentage of the population receiving the vaccine in phases 1 and 2. Perhaps, paying close attention to the CDC guidelines might be in the state and county best interest for now.

**Flowchart Timeline of COVID-19 Cases**



**Figure 4.** Flowchart timeline of COVID-19 cases. (See Figures 1, 6, and 7 for a graphical depiction).

**Flowchart Timeline of COVID-19 Deaths**



**Figure 5.** Flowchart timeline of COVID-19 deaths versus the vaccine. (See Figures 2, 8, and 9 for a graphical depiction).

Source: South Carolina Department of Health and Environmental Control

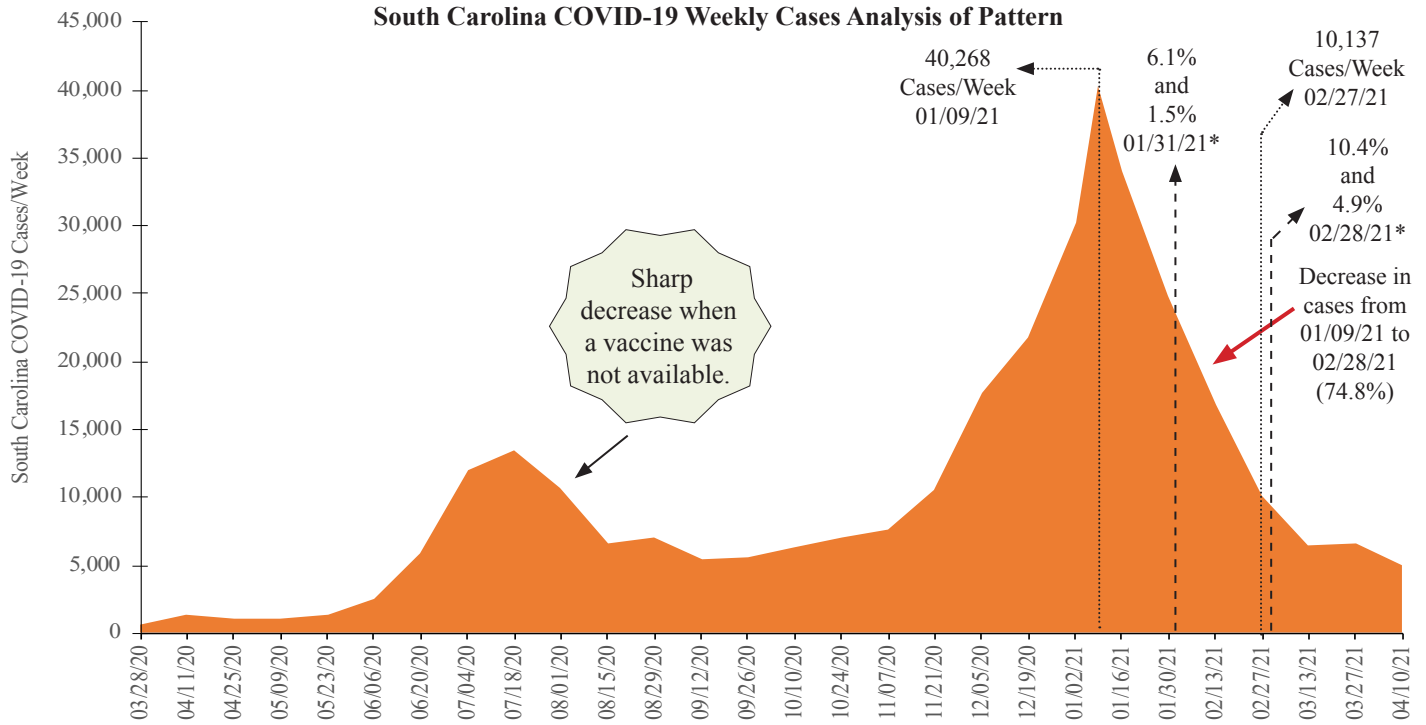
\*Potentially limited supply of COVID-19 vaccine doses is available.  
 \*\*A large number of vaccine doses is available.  
 \*\*\*The two percentages represent first and second dose



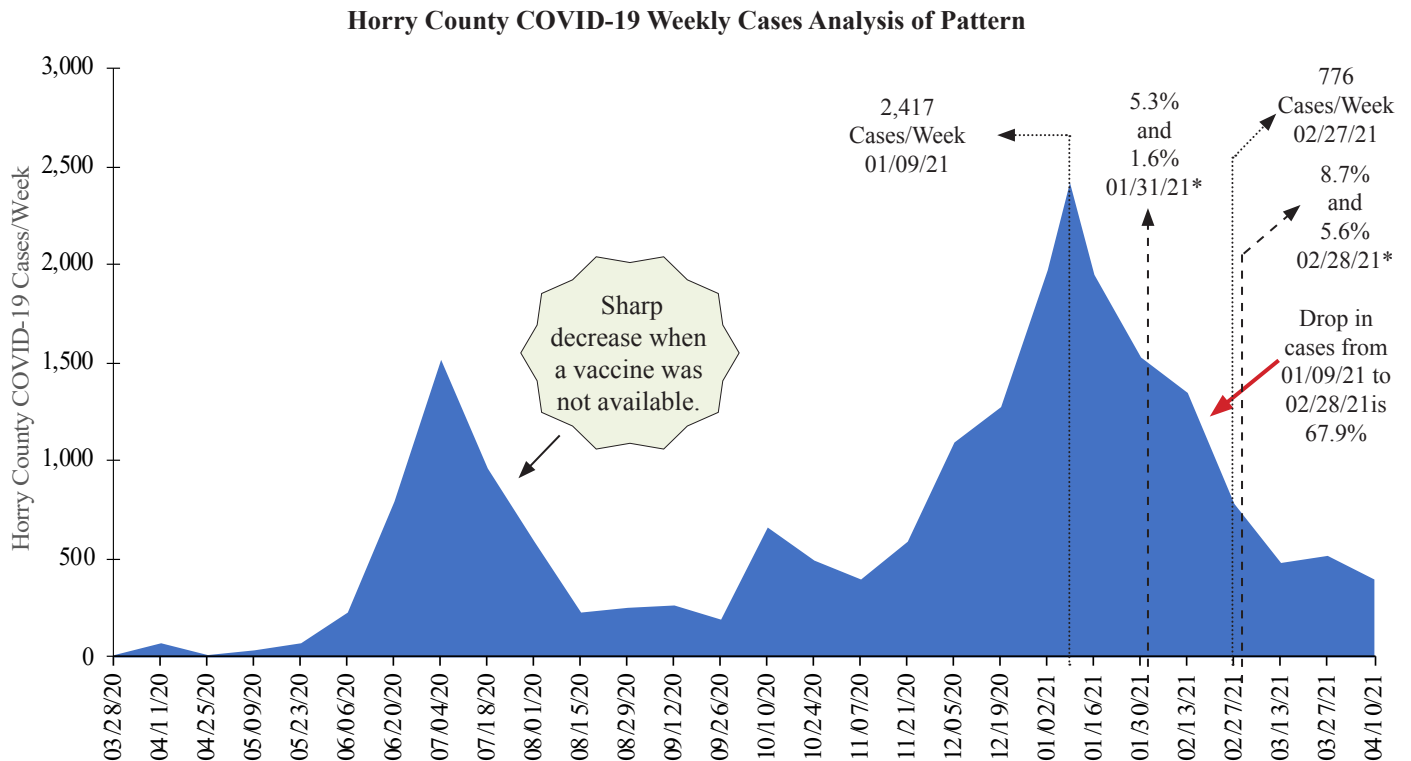
**Analysis of Pattern: COVID-19 Cases**

The graphs in Figures 6 and 7 depict the weekly rate of cases. Did the small percentage of vaccinations in January 2021 serve as a catalyst for the average precipitous drop of 70.2% in about six weeks? From March 13, 2021, to March 27, 2021, the number of deaths essentially

remained flat in spite of a much larger percentage of the population receiving the vaccine in phases 1 and 2. Perhaps, paying close attention to the CDC guidelines might be in the state and county best interest for now.



**Figure 6.** Trend in COVID-19 Weekly Cases in South Carolina, 03/28/20–04/10/21.



**Figure 7.** Trend in COVID-19 Weekly Cases in Horry County, 03/28/20–04/10/21.

\*The two percentages represent first and second dose. Source: South Carolina Department of Health and Environmental Control



### Analysis of Pattern: COVID-19 Deaths

The graphs in Figures 8 and 9 depict the weekly rate of deaths. Did the small percentage of vaccinations earlier serve as a catalyst for the average precipitous drop of 70.2% in about six weeks? From March 13, 2021, to March 27, 2021, the number of deaths essentially

remained flat in spite of a much larger percentage of the population receiving the vaccine in phases 1 and 2. Perhaps, paying close attention to the CDC guidelines might be in the state and county best interest for now.

South Carolina COVID-19 Deaths Analysis of Pattern

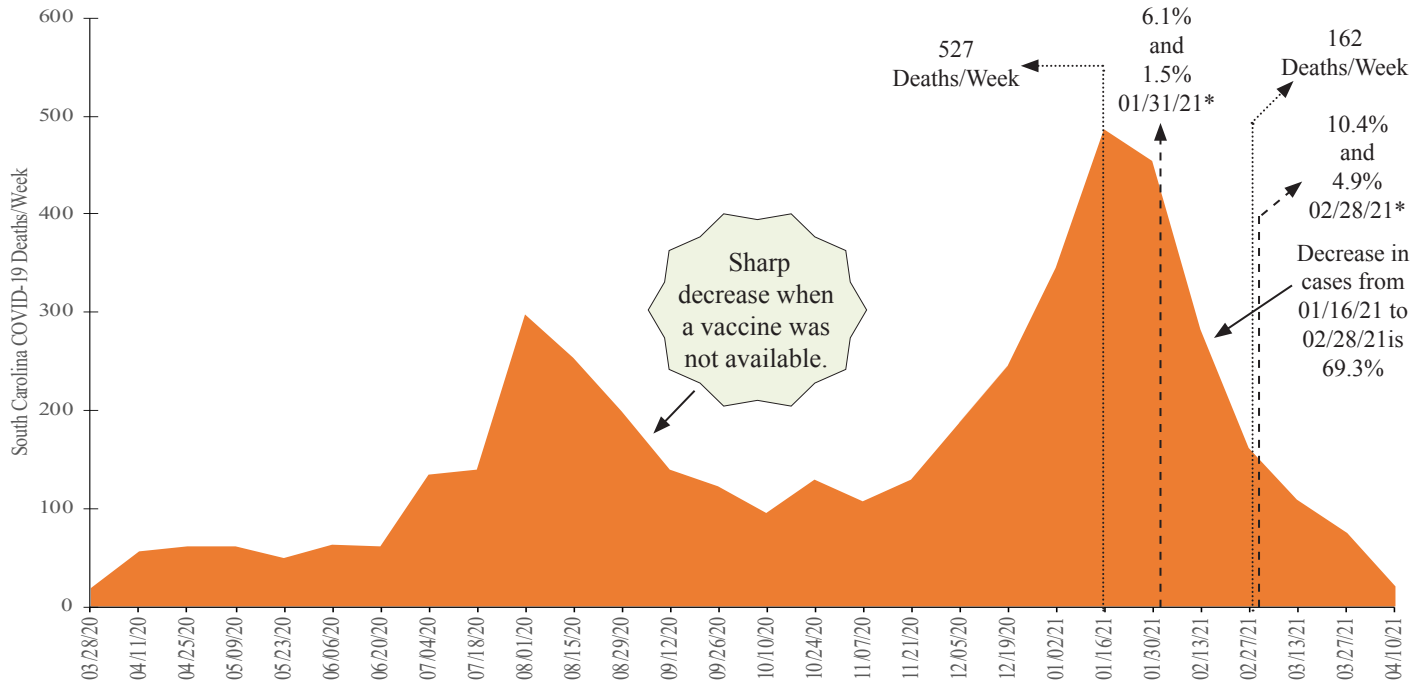


Figure 8. South Carolina: Trending and analysis in COVID-19 deaths, 03/28/20–04/10/21.

Horry County COVID-19 Deaths Analysis of Pattern

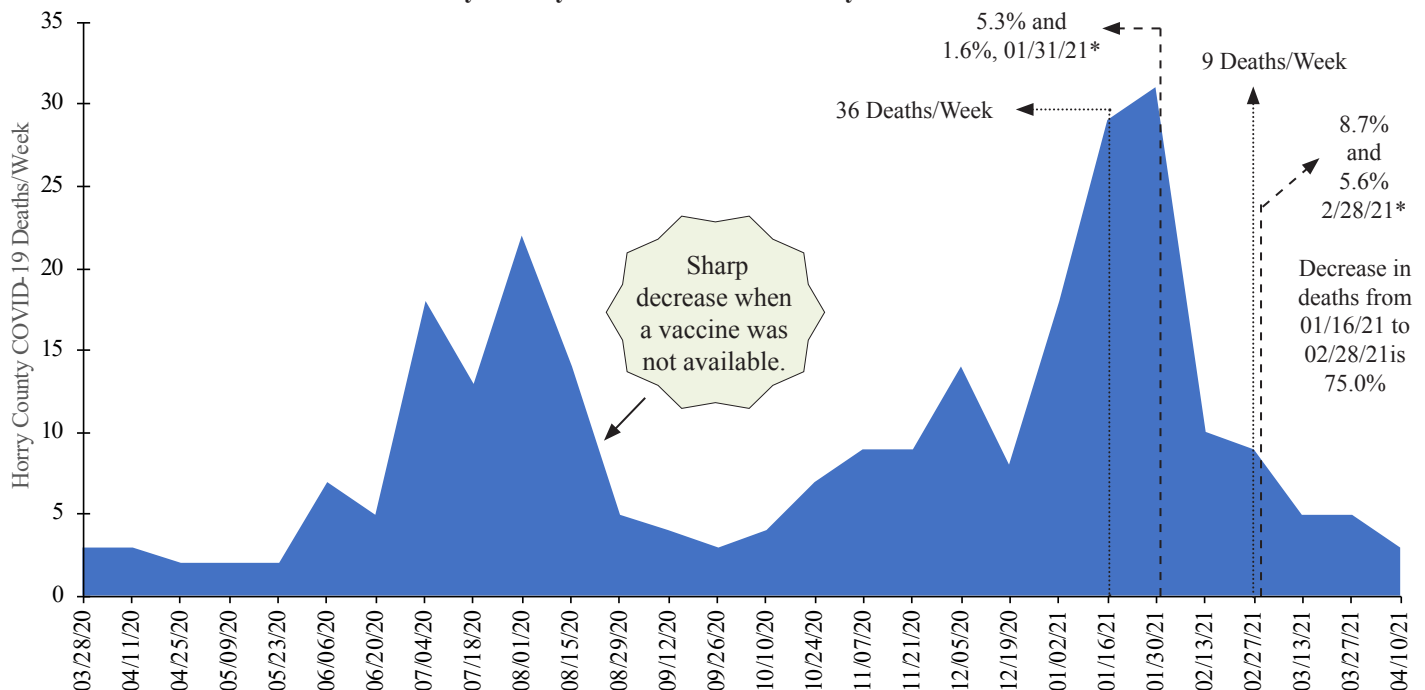


Figure 9. Horry County: Trending and Analysis in COVID-19 Deaths, 03/28/20–04/10/21.

Source: South Carolina Department of Health and Environmental Control

\*The two percentages represent the first and second dose.



The Author



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**David C. Wilson** is an electrical engineer by training as well as an adjunct mathematics professor—now retired after working for multinationals such as IBM and General Electric and teaching at schools such as Dutchess Community College, Quinnipiac University, and Horry Georgetown Technical College. He is a statistical consultant, family history researcher, author, and self-publisher. Dave resides in Conway, SC with his wife, Beverly. They have two adult sons and six grandchildren. He is a native of South Carolina (Horry County).



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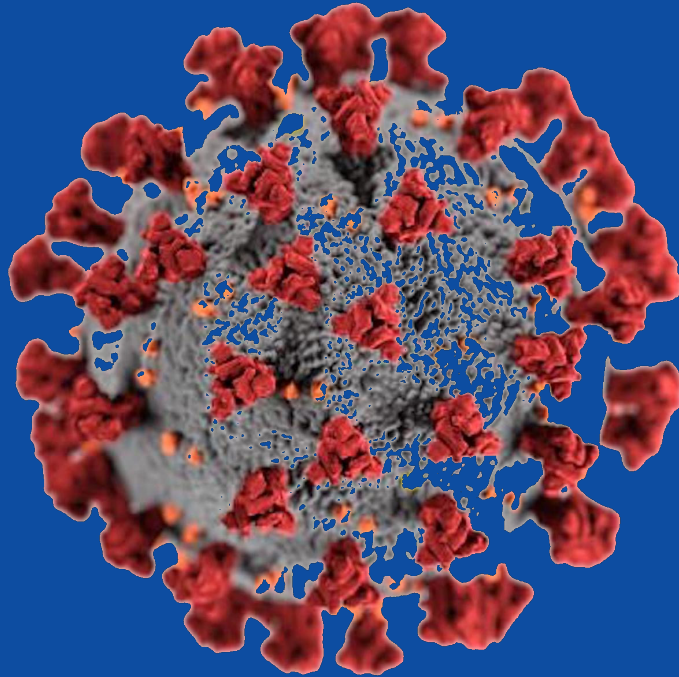
*It must be demonstrated . . .*



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