



American Society of
Anesthesiologists®

Volume 85 ■ Number 10 ■ October 2021
asamonitor.org

ASA Monitor®

THE LEADING SOURCE FOR PERIOPERATIVE HEALTH CARE NEWS

ASA Survey Results:



Commercial Fees Paid for Anesthesia Services – 2021

Stanley W. Stead, MD, MBA, FASA

Sharon K. Merrick, MS, CCS-P

ASA is pleased to present the annual commercial conversion factor survey for 2021. Each summer we survey anesthesiology practices across the country. We ask them to report up to five of their largest managed care (commercial) contract conversion factors (CF) and the percentage each contract represents of their commercial population, along with some demographic information. Our objectives for the survey are to report

to our members the average contractual amounts for the top five contracts and to present a view of regional trends in commercial contracting.

Summary

Based on the 2021 ASA commercial conversion factor survey results, the national average commercial conversion factor was \$85.23, ranging between \$79.04 and \$90.23 for the five contracts. The national median

Continued on page 6



Caring for the Injured and Acutely Ill

Arman Dagal, MD, FRCA, MHA

Marc P. Steurer, MD, MHA, DESA

Michael J. Murray, MD, PhD, MCCM

Death and disability caused by injuries remain a significant public health issue. For both children and adults younger than age 45, traumatic injuries continue to be the leading cause of death in the United States. Injury-associated deaths furthermore lead to substantial economic consequences. Given the major impact that trauma and acute care can subsequently have, in the late 2000s a

number of dedicated and enthusiastic anesthesiologists felt that a dedicated platform was needed to facilitate much-needed support and growth for this emerging subspecialty. This reflected the early casual inception of the Trauma Anesthesiology Society (TAS). The initial annual meetings were small and full of energy. Steady growth in subsequent years mirrored the need and desire of a

Continued on page 9



Get Vaccinated and Still Get COVID-19

Richard Simoneaux

Steven L. Shafer, MD

Editor-in-Chief

Recent news reports describe high-profile “breakthrough” cases of COVID-19 in *fully vaccinated* individuals. In one prominent case, a fully vaccinated Australian socialite was infected and became a superspreader (asamonitor.pub/3k1YEUt). Over a busy weekend in Los Angeles, he transmitted COVID-19 to approximately 60 people.

Hospital breakout in Finland

In May 2021, a patient with COVID-19-associated pneumonia was admitted to the central hospital of the Tavastia Proper health district in Finland (*Euro Surveill* 2021;26:2100636). RT-PCR demonstrated the Delta variant. The patient was discharged four days later. Six days after discharge, two patients in the same ward developed symptoms of infection. Both

tested positive for the Delta variant. The infection spread to three additional wards, infecting three patients and 21 health care workers. Some patients were transferred to other hospitals prior to identifying their exposure, transmitting the Delta variant to four other hospitals before the outbreak was identified.

By the time the outbreak was controlled, 58 patients were infected with the Delta variant. Contact tracing identified several patients infected by health care workers despite high vaccination rates and universal use of PPE. Eighteen patients died. Of the deceased patients, six were unvaccinated, 11 had received one dose, and one was fully vaccinated. All had underlying medical conditions.

There were 45 cases among health care workers. None had serious illness.

Continued on page 12



SPECIAL SECTION

Anesthesia in Low- and Middle-Income Countries 28-38

Guest Editors: Muhammad B. Rafique, MD, FASA;
Lalitha Sundararaman, MD; and Elizabeth T. Drum, MD, FASA

In the Know: Get Vaccinated

Continued from page 1

Of these, 18 were fully vaccinated (Pfizer mRNA BNT162b2), six had received one dose, and 21 were unvaccinated. Contact tracing demonstrated that three symptomatic, fully vaccinated health care workers transmitted COVID-19 to patients, colleagues, and household contacts. No secondary infections were traced to the five fully vaccinated health care workers without symptoms.

In the local community, 62 secondary infections were identified among close contacts of infected patients or health care workers.

MMWR-Provincetown breakout

In July 2021, there was an outbreak of 469 cases of COVID-19 in Barnstable County, Massachusetts, centered in the city of Provincetown (MMWR 2021;70:1059-62). Nearly three quarters of the cases were among those who were fully vaccinated. Of the fully vaccinated cases, 46% had received the mRNA vaccine from Pfizer-BioNTech, 38% had received the vaccine from Moderna, and 16% had received the vaccination from Johnson & Johnson/Janssen.

“To beat SARS-CoV-2, we must vaccinate as many people as quickly as possible and maintain effective public health measures.”

Nearly 80% (274) of the people experiencing breakthrough infection displayed symptomatic disease, with the most frequent presentations including cough, headache, sore throat, myalgia, and fever. Among people who were both symptomatic and fully vaccinated, the median interval from completing vaccination (i.e., ≥ 14 days post-final vaccine dose) to symptom onset was 86 days. Despite the high incidence of symptomatic disease, the symptoms were generally mild in these individuals. There were only four hospitalizations

Richard Simoneaux is a freelance writer with an MS in organic chemistry from Indiana University. He has more than 15 years of experience covering the pharmaceutical industry and an additional seven years as a laboratory-based medicinal chemist.



among the post-vaccination cases, and no fatalities.

Exposure vs. efficacy

The Pfizer-BioNTech BNT162b2 vaccine was 95% effective in preventing COVID-19 infection when compared with placebo in the phase 3 clinical trial (*N Engl J Med* 2020;383:2603-15). This means that if you are vaccinated, you only have a 5% chance of getting COVID-19, correct? Um, no.

The study demonstrated that vaccination reduced the risk of getting COVID-19 to just 5% of the risk in unvaccinated patients, a 20-fold reduction.

It tells you nothing about your chance of getting COVID-19, only the risk compared to an unvaccinated individual in the same study.

However, that isn't the full story. Vaccine efficacy against infection is a function of the frequency of exposure when the study was conducted, which we don't know. Obviously, the more frequently you are exposed to SARS-CoV-2, the more likely you are to get COVID-19.

Consider an extreme hypothetical. Suppose that two weeks after the second dose, every subject in the Pfizer phase 3 study received a blast of SARS-CoV-2

virions into each nostril every 10 seconds for the next two months – more than 50,000 exposures! Fifty thousand exposures would probably give anyone COVID-19, regardless of vaccination status. The vaccine would not appear to be effective, because 100% of the subjects in both groups were infected. Of course, the study would find a huge difference in outcome. About 2% of the unvaccinated individuals would die from COVID-19, while there would be no deaths in vaccinated individuals unless they had serious preconditions (*N Engl J Med* 2020;383:2603-15; *N Engl J Med* 2021;384:403-16; *N Engl J Med* 2021;385:585-94; asamonitor.pub/3mcOBOX; asamonitor.pub/3k1MKdp; *Clin Microbiol Infect* 2021;S1198-743X:00367-0).

While we aren't being exposed every 10 seconds to SARS-CoV-2, we are likely being more frequently exposed than we were a year ago because viral loads with the Delta variant appear to be about 1,000 times greater than with the original SARS-CoV-2 lineage (asamonitor.pub/37OB1ZQ). The CDC considers the Delta variant at least twice as infectious as previous variants (asamonitor.pub/3yZPLRB). News reports suggest that the CDC considers the Delta variant as infectious as chickenpox (asamonitor.pub/3CVu47O).

Thus, despite vaccination, exposures have gone way up. That partly accounts for the current surge in cases, including breakthrough infections in fully vaccinated individuals.

SARS-CoV-2 evolves

The other reason for the rise in breakthrough infections is that the current vaccines were designed to create antibodies

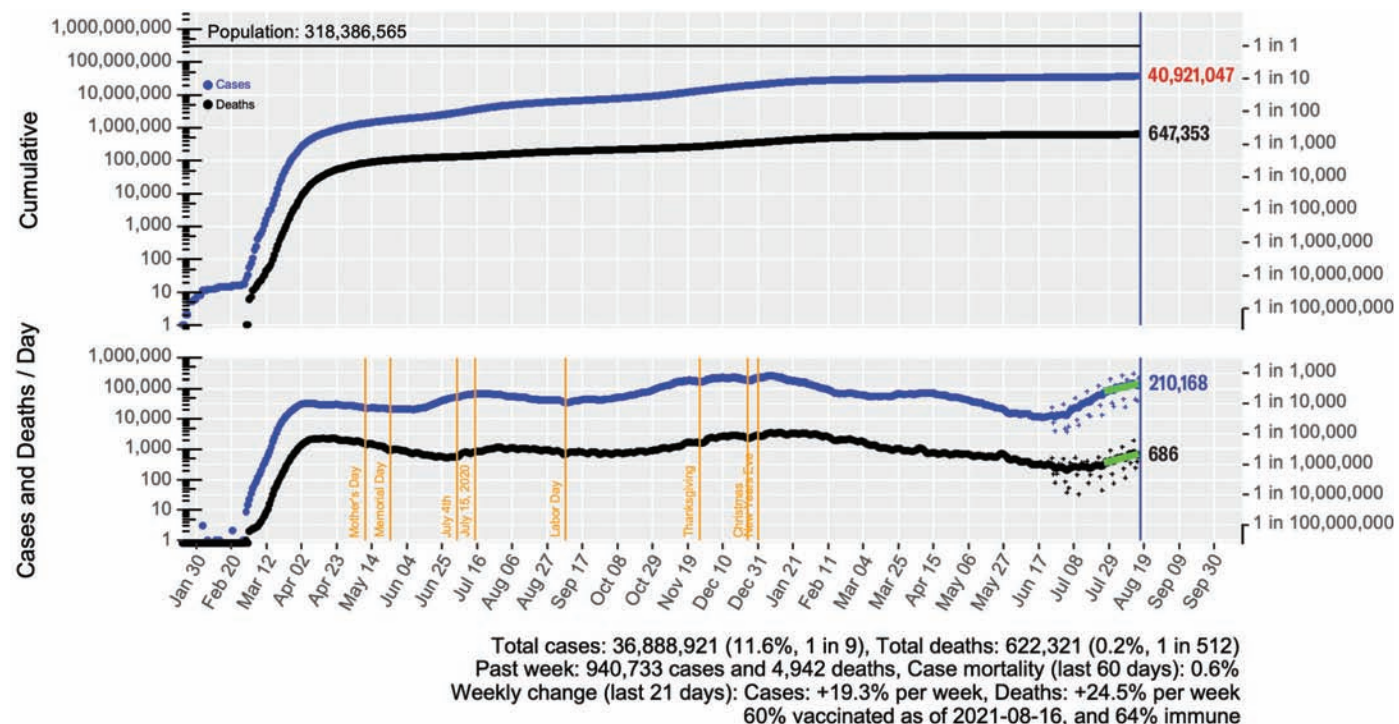


Figure: COVID-19 time series for the U.S. as of August 17, 2021. The Delta variant has resulted in cases and deaths increasing 24% per week.

to the original SARS-CoV-2 virus that emerged from Wuhan, China. That virus isn't around anymore. It was displaced by more infectious variants.

The primary driver of SARS-CoV-2 evolution has been infectiousness, and the primary driver of infectiousness has been affinity for the ACE2 receptor (*Viol J* 2021;18:166). Using random mutagenic libraries, Zahradnik and colleagues found that the trajectory of mutations in the receptor binding domain were uniformly to increase binding affinity to the ACE2 receptor (*Nature Microbiology* August 2021). Concerningly, they also found novel mutations that increase binding affinity up to 1,000-fold. Among these is Q498R, which is near the N501Y mutation present in multiple variants. Yikes! Fortunately, SARS-CoV-2 hasn't discovered this yet. However, we know from this work that there are yet more mutations that can enhance infectiousness.

Because the spike protein is the primary antigen presented to the immune system by vaccination, mutations in the spike protein reduce the neutralizing potential of vaccine-induced antibodies (*Nature* 2021;596:276-80). This is

likely the primary driver of reduced vaccine efficacy against the Delta variant (*BMJ* 2021;374:n1960; asamonitor.pub/2VXNwAa).

Israel data

In June, Brosh-Nissimov and colleagues reviewed 152 hospitalized patients who had been fully vaccinated with the Pfizer BNT162b2 vaccine (*Clin Microbiol Infect* 2021;S1198-743X:00367-0). Significant co-morbidities were noted in 96% of these patients. Mortality in patients with comorbidities was 22%. There were no deaths among the patients without comorbidities.

Subsequent data from Israel suggests that the Pfizer BNT162b2 vaccine is only 64% effective in preventing infection with the Delta variant (asamonitor.pub/2VUQm93). Concerningly, protection against severe disease is reduced to 93% against the Delta variant, compared to ~99% against the original lineage.

Given the decline in vaccine efficacy, the Vaccination Consultant Committee of the Israeli Ministry of Health approved the use of a third booster shot of the BNT162b2 vaccine in those 60 years or older (asamonitor.pub/3iSKqGb). As of

August 4, 2021, 262,563 individuals 60 years or older received their third vaccine (asamonitor.pub/3sDzD69).

"It ain't over 'til it's over"

The July 2021 issue of *ASA Monitor* included our article "It Ain't Over 'til It's Over" describing our misplaced feeling of liberation in the days and months after vaccination (*ASA Monitor* 2021;85:1-7). It seemed that the pandemic was behind us. Life would return to normal. The CDC said masks were no longer required (asamonitor.pub/3gaRhcn). Restrictions on business and social activities were lifted. England declared "Freedom day."

Nobody told SARS-CoV-2. SARS-CoV-2 continues to evolve into more infectious and dangerous forms, abetted by swaths of unvaccinated individuals serving as bioreactors. The Delta variant has fueled a surge in cases worldwide (Figure 1). The current surge in the United States has forced the CDC to amend their policy and recommend that even vaccinated individuals wear masks, follow social distancing, and other public health measures (asamonitor.pub/2XBSVNJ).

A landmark paper in *Scientific Reports* looks at vaccination, SARS-CoV-2 trans-

mission, and the emergence of vaccine-resistant strains (*Sci Rep* 2021;11:15729). The authors reach three conclusions:

1. "A fast rate of vaccination decreases the probability of emergence of a resistant strain."
2. "When a relaxation of non-pharmaceutical interventions happened at a time when most individuals of the population have already been vaccinated the probability of emergence of a resistant strain was greatly increased."
3. "Policymakers and individuals should consider maintaining non-pharmaceutical interventions and transmission-reducing behaviors throughout the entire vaccination period."

In other words, as we get closer to 100% vaccination, the selection pressure on SARS-CoV-2 will change from infectiousness in the unvaccinated to infectiousness in the vaccinated. We will see rising rates of infection in fully vaccinated individuals. To beat SARS-CoV-2, we must vaccinate as many people as quickly as possible *and* maintain effective public health measures.

If we don't, we'll get vaccinated and *still* get COVID. ■

ASA + YOUR COMMUNITY

Tap into the collective experience and expertise of 50K+ ASA members. Join the conversation, share your knowledge and insights, and make valuable connections for you and your practice.

Peer-to-peer collaboration, 24/7. Just one of your member benefits.



ASA[®] Community

The all-new ASA Community is your hub for conversation, connection, and collaboration. Find your voice community.asahq.org