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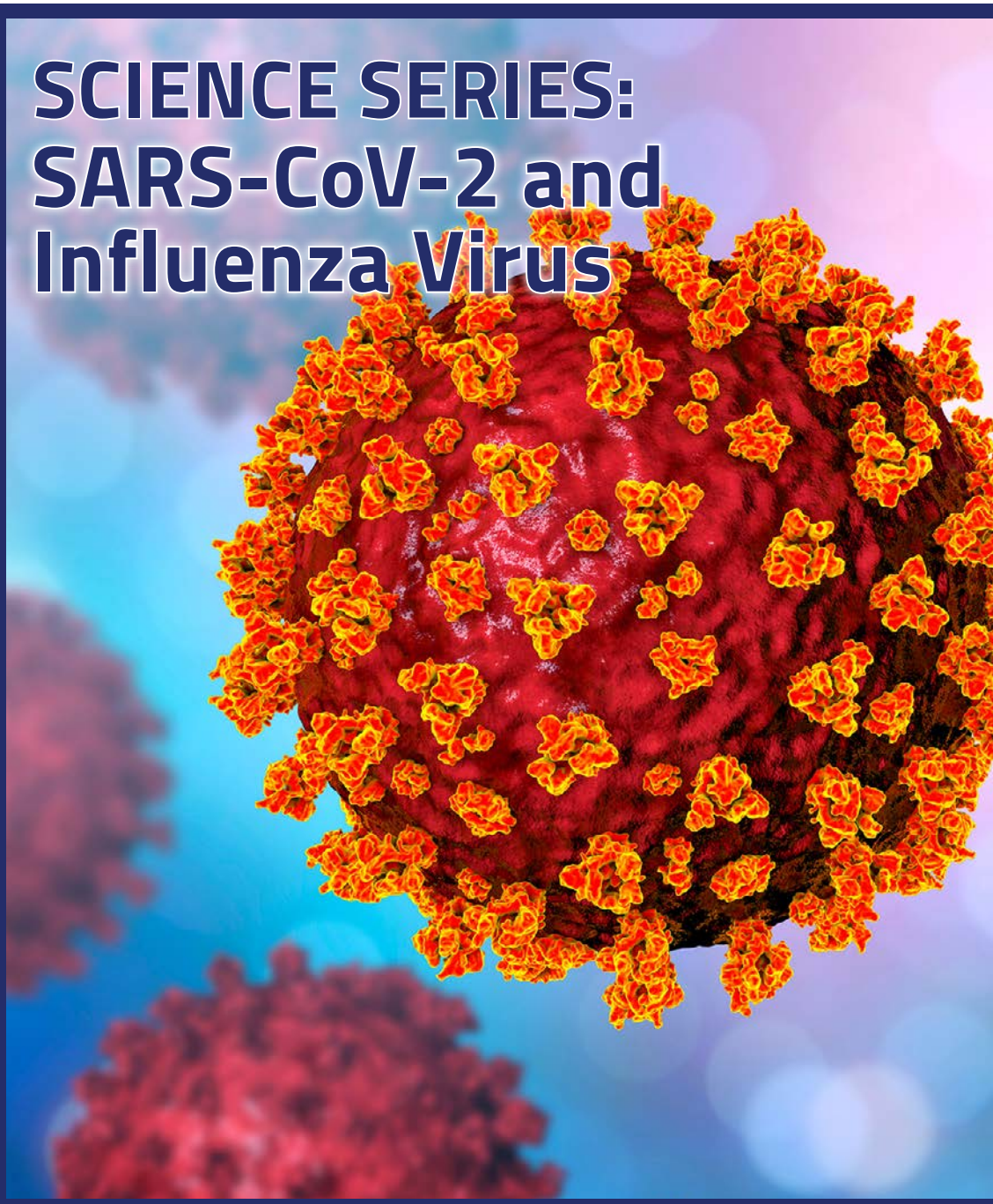

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SARS-CoV-2 and Influenza Virus: A Comparative Look at Their Relationships With the Respiratory System

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ABSTRACT

The world continues to grapple with the emergence of a novel coronavirus (severe acute respiratory syndrome-coronavirus-2 [SARS-CoV-2]) and its associated disease (coronavirus disease 2019 [COVID-19]). COVID-19 symptoms range from mild (or none) to severe and deadly. Some of these symptoms, especially those of the respiratory system, are similar to symptoms of influenza. Symptoms originate because respiratory cells become infected with SARS-CoV-2 or the influenza virus. This article describes these viral infections and provides molecular and physiological explanations for the respiratory symptoms. It also examines some COVID-19 treatments within this mechanistic framework.

A global pandemic exists. The culprit is severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2).[1-3] As of September 8, 2020, it has infected 27 million people around the world; nearly 900,000 have died.[4] These values indicate a mortality rate of 3% to 4%. The United States accounts for a sizable portion of these numbers: at least 6.2 million people have been infected, and 188,000 have died (a 3.3% mortality rate).[4] Throughout history, other pandemics have plagued our world. The Spanish Flu of 1918 is a dramatic example. The novel influenza virus infected at least 500 million people (nearly one-third of the earth's population).[5] An estimated 50 million patients died from it,[5] yielding a mortality rate approaching 10%. In nonpandemic years, infection numbers remain high, but the mortality rates decrease drastically. According to the Centers for Disease Control and Prevention, recent nonpandemic years saw between 9 million and 45 million reported cases of the seasonal flu in the United States.[6] Of these cases, 12,000 to 61,000 ended in death,[6] producing mortality rates of 0.1% to 0.2%. Worldwide, nearly 1 billion people contract the flu annually, and 290,000 to 650,000 of these patients succumb to the disease (mortality rate < 0.1%).[7] Four types of influenza virus exist: A, B, C, and D.[8] Types A (influenza virus type A [IAV]) and B cause seasonal influenza outbreaks in humans.[9] Because IAV is responsible for pandemics and a majority of the annual influenza outbreaks,[8] this article focuses only on IAV.

At first glance, the incidence of SARS-CoV-2 infection is lower than the annual incidence of the nonpandemic influenza virus. However, the mortality rate for SARS-CoV-2 is much higher than for seasonal flu, SARS-CoV-2 numbers continue to rise, isolation and masking procedures likely prevent higher numbers, and no vaccines have kept the virus's spread in check.

People infected with SARS-CoV-2 may present with a collection of symptoms called coronavirus disease 2019 (COVID-19).[3] Some of these symptoms, especially those of the respiratory system, are similar to symptoms of influenza. This article focuses on respiratory-related impacts of COVID-19 and influenza. It implements microbiological, physiological, and pathophysiological mechanisms in order to understand the clinical presentation for these viruses and to provide insight into the biological basis of potential COVID-19 treatments.

SARS-COV-2 AND IAV: MECHANISMS OF INFECTION

Viral Structure

Viruses are nonliving particles made of genetic information and an encapsulating coat. Genetic information may be DNA or RNA. The coat contains proteins that extend outward from the surface. The SARS-CoV-2 genome is one long RNA molecule.[2] The protein coat of SARS-CoV-2 displays several types of proteins, one of which is the spike (S) protein (Figure 1).[10] The IAV genome consists of 8 RNA molecules.[8] Two proteins expressed on IAV's surface are hemagglutinin (HA) and neuraminidase (NA).[8] These proteins and the S protein of SARS-CoV-2 are vital to the viruses' life cycles.[8,11]

Viral Life Cycles

Viral replication happens when a virus's genome is copied and viral proteins are synthesized from the code stored on the genome. However, viruses lack the tools needed to replicate. Therefore, they hijack host cells' machinery. This cycle of events occurs in several stages: viral recognition and attachment to host cells, fusion of the viral and host membranes and subsequent entry of the viral genetic information into the cell, synthesis of new copies of the viral genome and proteins,

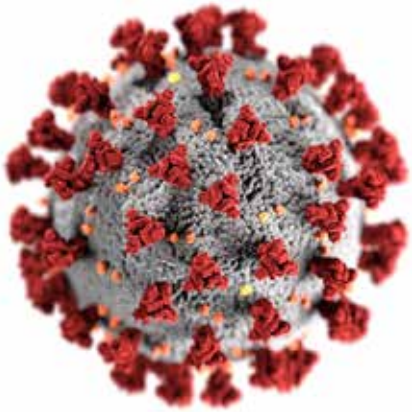

Figure 1. A model of SARS-CoV-2. The exterior of the COVID-19–causing virus is made of an encapsulating coat, shown in gray, and many copies of specific proteins. The S protein, shown in red, enables viral interaction with its host cells. M (membrane) and E (envelope) proteins aid in viral assembly; they are depicted in orange and yellow, respectively. (Photo by Centers for Disease Control and Prevention on Unsplash.)

packaging of these viral components, and release of viruses from the host. Both SARS-CoV-2 and IAV progress through these stages in their life cycles, but they do so in different ways (Figure 2).

Viral-host recognition, the first stage, occurs through protein-protein interactions. The SARS-CoV-2 S protein binds to angiotensin-converting enzyme type 2 (ACE2).[1,12-15] IAV's HA binds to modified proteins called sialic acid glycoproteins.[16] Sialic acid glycoproteins exist in at least 2 varieties: α2,3 and α2,6. The symbol and numbers define a specific linkage within the molecule. Interestingly, avian IAVs—influenza viruses that jumped from birds to humans—prefer to bind to α2,3 moieties, whereas human IAVs prefer the α2,6 configuration.[8]

Stages of a viral life cycle	SARS-CoV-2 life cycle	IAV life cycle
Virus/host recognition & attachment	Viral S protein & host ACE2	Viral HA & host sialic acid
↓	↓	↓
Fusion & gene entry	S protein cleavage & endocytosis	Endocytosis
↓	↓	↓
Synthesis of viral genome & proteins	Occurs in cytoplasm	Occurs in nucleus & cytoplasm
↓	↓	↓
Packaging of viral components	Occurs in Golgi apparatus & vesicle	Occurs at lipid rafts
↓	↓	↓
Virus release	Exocytosis	HA cleavage & viral budding

Figure 2. Viral life cycles of SARS-CoV-2 and IAV. SARS-CoV-2 and IAV progress through similar stages in their life cycles, but they differ in the specific mechanisms of this replication process.

A recent avian IAV strain is H5N1.[8] Human IAV subtypes include H1N1 and H3N2.[8] The H-number and N-number designations refer to the types of HA and NA, respectively, expressed on the viral envelopes.

After the S protein latches onto host cells' ACE2, SARS-CoV-2's life cycle proceeds. First, the S protein is cleaved.[14] Protein scissors called proteases perform this cut. Transmembrane protease serine 2 (TMPRSS2) is a key protease for this process.[14] Then, the cell internalizes the virus within a vesicle called an endosome.[17] (Some scientists suggest that these events may also occur in reverse order. First, the virus is internalized within an endosome. Then, a protease in the endosomal membrane clips the S protein and promotes membrane fusion.[18]) At this point, the viral and host membranes fuse, releasing the viral genome into the cell's cytoplasm. Here, the genome enters the cells' transcription and translation machinery and serves as a template for the production of many copies of the viral genome and the viral proteins.[17] These newly synthesized units are the building blocks of new viral particles. Assembly of these virions occurs within the cell's Golgi network.[19] Vesicles containing the new virions pinch off from the Golgi apparatus, travel to the host cell membrane, and release the virions from the cell in a process called exocytosis.[10]

For IAV, interaction of HA with sialic acid glycoproteins triggers internalization of the virus within an endosome.[8] Changes in endosomal pH initiate fusion of the viral and endosomal membranes.[8] (As it is for the SARS-CoV-2 life cycle, protease activity may be required for these processes;[20] human airway trypsin-like protease and TMPRSS2 are 2 protease candidates.[21]) Fusion releases the genetic material into the cell.[8] Unlike SARS-CoV-2 RNA, the IAV strands of RNA travel to the nucleus.[8] The host's tools and a few enzymes provided by IAV manufacture new copies of the viral genetic material and templates for viral protein production. Synthesis of these proteins (including HA and NA) occurs in the cytoplasm. IAV assembly and release also differ from that of SARS-CoV-2. Newly synthesized viral RNA strands and proteins make their way to the host's plasma membrane like resurfacing scuba divers. They congregate at specific locations called lipid rafts.[22] IAV RNA strands tether to the intracellular side of the raft.[22] Anchored in the host's raft membrane, HA and NA extend into the extracellular space. Release of new IAV virions occurs through budding: NA cleaves HA from its attachment to sialic acid glycoproteins, and the new viruses leave the host cell like bubbles leave a child's plastic bubble wand.[22]

OVERVIEW OF THE RESPIRATORY SYSTEM

Both the IAV and SARS-CoV-2 viruses infect the respiratory system. The respiratory system consists of the nose, nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles, and lungs. Air enters the nasal cavity through the nostrils and then flows through the pharynx (throat) and the larynx (voice box) and into the trachea. From here, it enters the left and right bronchi on its way to the left lung and right lung, respectively.

A series of progressively narrower branches of bronchi and bronchioles conduct the air to the lungs' 300 million alveoli.[23] These tiny air sacs, approximately 0.2 mm in diameter,[23] exist like grape clusters on respiratory bronchiole stems. They come into close contact with pulmonary capillaries and serve as the site of oxygen (O_2) and carbon dioxide (CO_2) gas exchange with the blood.

The interior surfaces of these respiratory structures—from the nasal cavity to the alveoli—are lined with epithelial tissue. Cell types within this lining express a unique combination of proteins on their surfaces. Presence of ACE2 and the TMPRSS2 protease or sialic acid glycoproteins make these cells prime targets for SARS-CoV-2 or IAV infection, respectively (Table 1). The expression profile of these proteins suggests that SARS-CoV-2 preferentially targets the nasal passages and the alveoli. IAV interaction is also strong in these areas, but it likely extends to the throat and airways of the lower respiratory system as well.

Table 1. Presence of ACE2, TMPRSS2, and Sialic Acid Glycoproteins in the Various Parts of the Respiratory System

Structure	(Glyco)Protein Expression		
	ACE2	TMPRSS2	Sialic Acid
Nasal Cavity	+	+	+
Pharynx	+/-		+
Larynx			+/-
Trachea			+/-
Bronchi	+/-	+/-	+
Bronchioles	+/-		+/-
Alveoli	+	+	+
References	42,43,58-61	43,58,59,61,62	44,58,63-65

+, presence of the protein; +/-, weak presence of the protein; blank, no presence (or no documented presence) of the protein. The existence of these proteins determines which areas of the respiratory system are susceptible to SARS-CoV-2 or IAV infection.

RESPIRATORY SYSTEM AND VIRAL INFECTIONS

Defense Mechanisms of the Respiratory System

The respiratory epithelium is not defenseless against viral infection. Mucus secreted by the resident goblet cells creates a physical barrier over the host cells. One type of mucus also contains a chemical with a similar structure to sialic acid.[24] This decoy likely lures IAV to the mucus rather than to the sialic acid on the host cell membrane. Other defense mechanisms are triggered when viruses enter the respiratory cells.[25-28] This invasion activates the immune system.[28-30] Immune-related chemicals—cytokines—flood the area. Residential immune cells fight the pathogen and recruit other immune cells to the area. Inflammation increases. Chemicals called interferons initiate antiviral events within host cells.[31] (SARS-CoV-2 may suppress this interferon production.[19,26]) These immune reactions, coupled with the damage invoked on host cells by viral replication, produce some of the symptoms affiliated with both influenza and COVID-19.

Respiratory Symptoms of Influenza and COVID-19

Influenza and COVID-19 share respiratory-related symptoms: cough, stuffy nose, fatigue, and, in advanced cases, acute respiratory distress syndrome (ARDS).[32] These symptoms make sense in the context of ACE2, TMPRSS2, and sialic acid glycoprotein expression (Table 1), which occurs predominately in the nasal cavity and lungs. The viruses gain entry into the body through droplets inhaled into the nasal cavity. Here, the viruses find welcome mats in the form of ACE2 and sialic acid glycoproteins expressed on host cells.

In most cases, the body's immune system limits the viral infection to the upper respiratory tract. However, greater viral load increases the likelihood of its spread to the lower regions of the respiratory tract as cells in the alveoli express the virus-tethering proteins. Viral attack, the body's counterattack, and excess cytokine production within the alveoli cause ARDS. ARDS develops in at least 15% of hospitalized patients with COVID-19[33-35] and in 25% or more of hospitalized patients infected with pandemic influenza strains.[35-37] These values are cohort-specific, and some of the influenza-related numbers may reflect coincidences of pneumonia.[38] Therefore, comparisons between ARDS prevalence levels in patients with COVID-19 and patients with influenza must be made carefully.

An Explanation of ARDS

Patients with ARDS have substantial difficulty getting enough O_2 into their bodies. In order to understand the rationale behind this struggle, we must understand some basic principles of a healthy respiratory system. Unobstructed airways conduct O_2 to alveoli and CO_2 away from alveoli. Alveoli are lined with a single layer of flat cells (type I pneumocytes) interspersed with cuboidal-shaped cells (type II pneumocytes). Type II pneumocytes secrete surfactant, a chemical that reduces surface tension and prevents alveolar wall collapse. Type I pneumocytes create the surface over which O_2 and CO_2 diffuse between the alveoli and adjacent pulmonary capillaries. The cells' shape optimizes this gas exchange by minimizing the distance over which the gasses must travel.

Gas exchange—movement of O_2 from the alveoli into the blood and movement of CO_2 from the blood into the alveoli—is driven by partial pressure gradients. Deoxygenated blood is pumped by the heart's right ventricle through the pulmonary arteries to the pulmonary capillaries. This blood has O_2 and CO_2 levels of 40 mmHg and 46 mmHg, respectively. Well-ventilated alveoli have O_2 and CO_2 levels of 100 mmHg and 40 mmHg, respectively. (The amount of O_2 and CO_2 in the alveolar air and the blood is often measured in terms of partial pressure. This unit of measurement is preferred to concentration because gases dissolve in air differently than they do in fluid [ie, blood]. Gas pressures equilibrate between the alveoli and blood; gas concentrations do not equilibrate.) CO_2 moves from the blood into the alveoli to be exhaled from the body. O_2 moves from the alveoli into the blood. The blood flows through pulmonary veins to the left side of the heart to be

pumped throughout the body. This systemic arterial blood has O_2 and CO_2 levels of 100 mmHg and 40 mmHg, respectively.

Normal O_2 and CO_2 levels rely on 3 conditions: (1) ease of air flow into and out of the lungs, (2) properly distended alveoli, and (3) a short distance between the alveoli and pulmonary capillaries in order to optimize gas exchange. These conditions contribute to a respiratory diagnostic tool: the ratio of the partial pressure of O_2 in systemic arteries (P_{aO2})/fraction of O_2 in inspired air (F_{IO2}). Normal P_{aO2} is 100 mmHg. The F_{IO2} is approximately 20%, or 0.2. Therefore, healthy respiratory conditions yield a P_{aO2}/F_{IO2} ratio of 500. Viral infection and the ensuing immune responses compromise these conditions. Cardiac manifestations of SARS-CoV-2 infection,[39,40] such as heart failure, may exacerbate these pulmonary conditions.[34]

Thickened lung walls and/or fluid buildup around the lungs compromise lung expansion and therefore air flow.[41]

Respiratory function is compromised also by a reduction in alveolar surface area over which gas exchange occurs. Viral-induced or immune-induced destruction of type I pneumocytes directly reduces surface area. Infection of type II pneumocyte indirectly decreases surface area.[42-44] Infected type II pneumocytes produce less surfactant. As a result, alveoli may collapse and block air entry. This impaired gas exchange drops O_2 levels in the pulmonary veins and systemic arteries below 100 mmHg ($P_{aO2} < 100$ mmHg) and produces hypoxemia.

P_{aO2} also falls because the distance between alveoli and pulmonary capillaries increases. This increase results from at least 2 causes: thickening of the alveolar walls and fluid accumulation. Alveolar walls gather protein and other debris from the immune system's war against the viruses. O_2 and CO_2 cannot easily diffuse across this barrier. Fluid builds up as a by-product of immune activity. Additionally, the immune system increases blood vessel permeability as a means to enable more immune fighters to enter the area. This leakiness, however, allows fluid to escape from the vessels and settle in the area between the alveoli and pulmonary capillaries. Gases cannot diffuse efficiently across this fluid-widened distance.

Let us apply this physiological information to ARDS. ARDS is a symptom; it is not itself a disease. Its conceptual definition was endorsed by European and American clinical societies in 2012.[45] It includes these parameters: "inflammation leading to increased pulmonary vascular permeability and loss of aerated lung tissue," hypoxemia, indications of fluid presence, a mixture of oxygenated and deoxygenated blood leaving the pulmonary capillaries, "increased physiological dead space [destroyed alveolar surface area]," "decreased respiratory system compliance [expansion ability]," and "lung edema [fluid buildup]."[45] The definition also sets the P_{aO2}/F_{IO2} ratio at less than or equal to 300 in the presence of positive pressure ventilation assistance.[45] Positive pressure ventilation forces air into compromised lungs. It also increases the P_{aO2} and F_{IO2} values.

TREATMENTS FOR COVID-19

Between December 2019, when COVID-19 was first recognized,[1,2] and mid-2020, immediate need for COVID-19 treatments superseded the typical pattern of drug approval through clinical trials. The rapid rise in the number of severe COVID-19 cases required health care providers around the globe to reach into their arsenal of available licensed drugs. Obviously, these drugs had not been approved for COVID-19 treatment. Nevertheless, their properties and approved uses made them intriguing candidates in the fight against SARS-CoV-2 and COVID-19. Lopinavir/ritonavir, hydroxychloroquine (HCQ), favipiravir, remdesivir, tocilizumab, and dexamethasone are some such drugs.

Lopinavir/ritonavir, HCQ, favipiravir, and remdesivir likely interfere with SARS-CoV-2's life cycle.[46] Lopinavir/ritonavir, a combination of protease inhibitors approved for HIV treatment, could disrupt viral entry by inhibiting TMPRSS2 activity. HCQ could reduce the affinity of ACE2 for the S protein or impair membrane fusion by altering pH levels within the endosome. Favipiravir and remdesivir work at the level of RNA replication. Favipiravir inhibits the RNA polymerase activity that drives viral genome replication. Remdesivir masquerades as an RNA building block (nucleoside) but stops replication in its tracks when incorporated into the lengthening RNA strand.

Tocilizumab and dexamethasone alter immune activity. Tocilizumab is an antibody that binds cytokines.[46] This binding limits cytokines' effectiveness in activating the immune response. As a result, inflammation and necrosis from immune cell activity decrease. Dexamethasone, a corticosteroid, also reduces inflammation. However, it accomplishes this task through a different mechanism: it increases the production of anti-inflammatory molecules.

Mechanical ventilation saves the lives of many patients with COVID-19 presenting with ARDS. Such ventilation delivers regulated O_2 levels to patients via positive pressure.[47] An increased O_2 delivery to the alveoli treats patients' hypoxemia: higher levels of O_2 in the alveoli enhance O_2 diffusion into the blood. Subsequently, this increased P_{aO2} improves a patient's P_{aO2}/F_{IO2} ratio. The positive pressure opens airways and alveoli. It forces fluid back out of the lungs and thereby reclaims space for the O_2-rich air.

Currently, however, the emphasis returns to requiring clinical trials for COVID-19 drug approval. Ideally, clinical trials contain a patient control group (not receiving the drug treatment) alongside at least one treatment group, and both random and double-blind assignment of patients into one of the groups. ("Double-blind" means that both the patients and the scientists/clinicians running the study do not know the group into which each patient is assigned.) Previously used drugs and newly developed drugs and treatments are being tested according to these criteria. HCQ, a previously developed drug, has received considerable attention. Studies published early in the pandemic claimed HCQ's effectiveness against COVID-19, but these study designs did not meet the criteria

of clinical trials.[48] The World Health Organization urges these results to be "interpreted with caution,"[49] and the National Institutes of Health recommend against HCQ use for COVID-19 treatment except in clinical trials.[50] (As of October 31, 2020, the National Institutes of Health's ClinicalTrials.gov site listed more than 100 "recruiting," "enrolling," and "active" studies involving HCQ and COVID-19.[51])

Drugs in clinical trials target some aspect of the SARS-CoV-2 life cycle or panoply of COVID-19 symptoms (Table 2). According to the Milken Institute, more than 300 groups are studying nonvaccine treatment options, and approximately 200 groups are working on vaccine developments.[52] Vaccines are prophylactic treatments. They prevent people from contracting the viral disease or at least minimize the severity of the infection and its symptoms. In short, they prime people's immune systems against the virus by delivering an unharmful form of the virus. One's immune system mounts an attack against this foreign particle (antigen). The weapons needed for this fight are committed to the body's immune memory via memory cells so that if/when the actual SARS-CoV-2 invades, the body's reaction will be faster and more robust.

Conventionally, a vaccine contains the actual virus (or piece of the virus) against which it is designed to protect. These viruses are either inactivated (dead) or live but weakened (attenuated). Of the many SARS-CoV-2 vaccines in development, 6 of them are in Phase 3 clinical trials as of mid-September 2020.[52] Three frontrunners, manufactured by Sinovac/Instituto Butantan, Wuhan Institute/Sinopharm, and Beijing Institute/Sinopharm, contain inactive forms of SARS-CoV-2.[52] Two others, developed by BioNTech/Fosun/Pfizer and Moderna/6 other organizations, package messenger RNA (mRNA) in lipid droplets called lipid nanoparticles.[52] Theoretically, lipid nanoparticles deliver the mRNA to a person's cells, and the cells use the mRNA template to produce the antigen against which the immune system develops immunity. The 6th vaccine, developed by University of Oxford/AstraZeneca/11 other organizations, contains the S protein encoded within an inactivated chimpanzee-derived virus.[53]

CONCLUSION

Viral infectivity patterns, the host's anatomy and physiology, and people's practices dictate the spread of SARS-CoV-2 and IAV. Scientists describe viruses' spread according to several parameters, including incubation period, transmissibility period, and viral reproduction number. A virus's incubation period is the length of time between exposure and symptom onset. For SARS-CoV-2 and IAV, this time frame is typically 5 to 6 days[54] and 1 to 4 days,[32] respectively. This means that IAV spreads more quickly than SARS-CoV-2 does. However, individuals infected with SARS-CoV-2 have a longer transmissibility period. They remain contagious and able to spread the virus for an average of 10 days,[32] whereas IAV-infected individuals remain contagious for an average of only 3 to 4 days.[32] Coughs, sneezes, speaking, and regular exhalations eject particles from the respiratory tract sites of viral replication. People transmit the virus regardless of whether their symptoms are unnoticeable or severe. In SARS-CoV-2–infected people, the viral reproduction number—how many people are infected by an infected individual—is nearly twice as high (2 to 2.5)[55] than it is for IAV (1.1 to 1.8).[56]

Table 2. Treatments for SARS-CoV-2 Infections or COVID-19

Treatment Category[52]	**Mechanism(s)**[52]	**Example(s)**[46,52]
Antibodies	Neutralize viral infectivity	Convalescent plasma (plasma from patients recovered from COVID-19)[66]
	Turn down immune reactions	Tocilizumab
Antivirals	Inhibit protease activity	Camostat mesylate (Foipan®)[66]
	Inhibit fusion of viral and host membranes[46]	HCQ[59]
	Disrupt genetic replication	Remdesivir[59]
Cell-Based Therapies	Provide specially designed cells to fight the virus	Allocetra™[60]
Devices	Filter viruses and/or excess immune-stimulating chemicals out of the blood	Seraph® 100[61]
	Assist patients' breathing	LungFit™[62]
RNA-Based	Interfere with production of viral proteins	VIR-2703[63]
	Introduce the mRNA code of helpful proteins	SNIM®RNA[52,71]
Vaccines	Trigger and strengthen immunity against the virus	See text
Other Immunomodulators[72]	Reduce inflammatory activity (and therefore tissue destruction)[72]	Dexamethasone (a corticosteroid)[72]

Treatments for SARS-CoV-2 infections and/or COVID-19 fall within one of several categories.[52] These treatments target a part of SARS-CoV-2's life cycle, a person's immune response to the virus, or a symptom of COVID-19. The mechanism(s) of and at least one example for each treatment category are provided.

Most SARS-CoV-2 and seasonal IAV infections do not cause severe health issues. For both types of infections, approximately 80% of cases result in mild or unnoticeable symptoms.[55,57] As the colder months approach, the seasonal flu season will join the COVID-19 pandemic. The human body's efforts to maintain (or return to) a healthy state despite environmental threats or internal mishaps are extraordinary. Nevertheless, in addition to immune system activity and medical treatments, people's vigilance and proactivity will be important to controlling the viruses' spread.

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References

1. Zhou P, Yang X-L, Wang X-G, et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. *Nature*. 2020;579(7798):270-273. doi:10.1038/s41586-020-2012-7
2. Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020;382(8):727-733. doi:10.1056/NEJMoa2001017
3. Naming the coronavirus disease (COVID-19) and the virus that causes it. World Health Organization. Published 2020. Accessed September 10, 2020. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it
4. WHO Coronavirus Disease (COVID-19) Dashboard. World Health Organization. Published 2020. Accessed September 8, 2020. https://covid19.who.int/table
5. Influenza: are we ready? World Health Organization. Published 2018. Updated 2020. Accessed September 8, 2020. https://www.who.int/news-room/spotlight/influenza-are-we-ready
6. Burden of influenza. Centers for Disease Control and Prevention. Published April 17, 2020. Accessed September 8, 2020. https://www.cdc.gov/flu/about/burden/index.html
7. Influenza (seasonal). World Health Organization. Published 2018. Accessed September 8, 2020. https://www.who.int/news-room/fact-sheets/detail/influenza-(seasonal)
8. Krammer F, Smith GJD, Fouchier RAM, et al. Influenza. *Nat Rev Dis Primer*. 2018;4(1):3. doi:10.1038/s41572-018-0002-y
9. Hutchinson EC. Influenza virus. *Trends Microbiol*. 2018;26(9):809-810. doi:10.1016/j.tim.2018.05.013
10. Kumar S, Nyodu R, Maurya VK, Saxena SK. Morphology, genome organization, replication, and pathogenesis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In: Saxena SK, ed. *Coronavirus Disease 2019 (COVID-19): Epidemiology, Pathogenesis, Diagnosis, and Therapeutics*. Springer, Singapore; 2020:23-31. doi:10.1007/978-981-15-4814-7_3
11. Gallagher TM, Buchmeier MJ. Coronavirus spike proteins in viral entry and pathogenesis. *Virology*. 2001;279(2):371-374. doi:10.1006/viro.2000.0757
12. Shang J, Ye G, Shi K, et al. Structural basis of receptor recognition by SARS-CoV-2. *Nature*. 2020;581(7807):221-224. doi:10.1038/s41586-020-2179-y
13. Yan R, Zhang Y, Li Y, Xia L, Guo Y, Zhou Q. Structural basis for the recognition of SARS-CoV-2 by full-length human ACE2. *Science*. 2020;367(6485):1444-1448. doi:10.1126/science.abb2762
14. Hoffmann M, Kleine-Weber H, Schroeder S, et al. SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor. *Cell*. 2020;181(2):271-280.e8. doi:10.1016/j.cell.2020.02.052
15. Wang Q, Zhang Y, Wu L, et al. Structural and functional basis of SARS-CoV-2 entry by using human ACE2. *Cell*. 2020;181(4):894-904.e9. doi:10.1016/j.cell.2020.03.045
16. Suzuki Y, Nakao T, Ito T, et al. Structural determination of gangliosides that bind to influenza A, B, and C viruses by an improved binding assay: strain-specific receptor epitopes in sialo-sugar chains. *Virology*. 1992;189(1):121-131. doi:10.1016/0042-6822(92)90687-k
17. Al-Horani RA, Kar S, Aliter KF. Potential anti-COVID-19 therapeutics that block the early stage of the viral life cycle: structures, mechanisms, and clinical trials. *Int J Mol Sci*. 2020;21(15):5224. doi:10.3390/ijms21155224
18. Yang N, Shen H-M. Targeting the endocytic pathway and autophagy process as a novel therapeutic strategy in COVID-19. *Int J Biol Sci*. 2020;16(10):1724-1731. doi:10.7150/ijbs.45498
19. Kumar S, Nyodu R, Maurya VK, Saxena SK. Host immune response and immunobiology of human SARS-CoV-2 infection. In: Saxena SK, ed. *Coronavirus Disease 2019 (COVID-19): Epidemiology, Pathogenesis, Diagnosis, and Therapeutics*. Springer, Singapore; 2020:43-53. doi:10.1007/978-981-15-4814-7_5
20. Laporte M, Naesens L. Airway proteases: an emerging drug target for influenza and other respiratory virus infections. *Curr Opin Virol*. 2017;24:16-24. doi:10.1016/j.coviro.2017.03.018
21. Böttcher E, Matrosovich T, Beyerle M, Klenk H-D, Garten W, Matrosovich M. Proteolytic activation of influenza viruses by serine proteases TMPRSS2 and HAT from human airway epithelium. *J Virol*. 2006;80(19):9896-9898. doi:10.1128/JVI.01118-06
22. Rossmann JS, Lamb RA. Influenza virus assembly and budding. *Virology*. 2011;411(2):229-236. doi:10.1016/j.virol.2010.12.003
23. VanPutte C, Regan J, Russo A, Seeley R, Stephens T, Tate P. *Seeley's Anatomy & Physiology*. 11th ed. McGraw-Hill Education; 2017.
24. Ehre C, Worthington EN, Liesman RM, et al. Overexpressing mouse model demonstrates the protective role of Muc5ac in the lungs. *Proc Natl Acad Sci*. 2012;109(41):16528-16533. doi:10.1073/pnas.1206552109
25. Benam KH, Denney L, Ho L-P. How the respiratory epithelium senses and reacts to influenza virus. *Am J Respir Cell Mol Biol*. 2019;60(3):259-268. doi:10.1165/rcmb.2018-0247TR
26. Chen J, Subbarao K. The immunobiology of SARS. *Annu Rev Immunol*. 2007;25(1):443-472. doi:10.1146/annurev.immunol.25.022106.141706
27. Subbarao K, Mahanty S. Respiratory virus infections: understanding COVID-19. *Immunity*. 2020;52(6):905-909. doi:10.1016/j.immuni.2020.05.004
28. Vardhana SA, Wolchok JD. The many faces of the anti-COVID immune response. *J Exp Med*. 2020;217(6):e20200678. doi:10.1084/jem.20200678
29. Herold S, Becker C, Ridge KM, Budinger GRS. Influenza virus-induced lung injury: pathogenesis and implications for treatment. *Eur Respir J*. 2015;45(5):1463-1478. doi:10.1183/09031936.00186214
30. Andersson U, Ottestad W, Tracey KJ. Extracellular HMGB1: a therapeutic target in severe pulmonary inflammation including COVID-19? *Mol Med*. 2020;26(1):42. doi:10.1186/s10020-020-00172-4
31. Crotta S, Davidson S, Mahlakoiv T, et al. Type I and type III interferons drive redundant amplification loops to induce a transcriptional signature in influenza-infected airway epithelia. In: Kawaoka Y, ed. *PLOS Pathog*. 2013;9(11):e1003773. doi:10.1371/journal.ppat.1003773
32. Similarities and differences between flu and COVID-19. Centers for Disease Control and Prevention. Published August 31, 2020. Accessed September 7, 2020. https://www.cdc.gov/flu/symptoms/flu-vs-covid19.htm
33. Are there risk factors and preventative interventions for acute respiratory distress syndrome (ARDS) in COVID-19? CEBM. Published June 8, 2020. Accessed September 15, 2020. https://www.cebm.net/covid-19/are-there-risk-factors-and-preventative-interventions-for-acute-respiratory-distress-syndrome-ards-in-covid-19/
34. Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *The Lancet*. 2020;395(10229):1054-1062. doi:10.1016/S0140-6736(20)30566-3
35. Tang X, Du R-H, Wang R, et al. Comparison of hospitalized patients with ARDS caused by COVID-19 and H1N1. *Chest*. 2020;158(1):195-205. doi:10.1016/j.chest.2020.03.032
36. Louie JK, Acosta M, Winter K, et al. Factors associated with death or hospitalization due to pandemic 2009 influenza A(H1N1) infection in California. *JAMA*. 2009;302(17):1896-1902. doi:10.1001/jama.2009.1583

37. Perez-Padilla R, de la Rosa-Zamboni D, Ponce de Leon S, et al. Pneumonia and respiratory failure from swine-origin influenza A (H1N1) in Mexico. *N Engl J Med*. 2009;361(7):680-689. doi:10.1056/NEJMoa0904252
38. Kalil AC, Thomas PG. Influenza virus-related critical illness: pathophysiology and epidemiology. *Crit Care*. 2019;23(1):258. doi:10.1186/s13054-019-2539-x
39. Guzik TJ, Mohiddin SA, Dimarco A, et al. COVID-19 and the cardiovascular system: implications for risk assessment, diagnosis, and treatment options. *Cardiovasc Res*. 2020;116(10):1666-1687. doi:10.1093/cvr/cvaa106
40. Liu PP, Blet A, Smyth D, Li H. The science underlying COVID-19: implications for the cardiovascular system. *Circulation*. 2020;142(1):68-78. doi:10.1161/CIRCULATIONAHA.120.047549
41. Onigbinde SO, Ojo AS, Fleary L, Hage R. Chest computed tomography findings in COVID-19 and influenza: a narrative review. *BioMed Res Int*. 2020;2020:6928368. doi:10.1155/2020/6928368
42. Hamming I, Timens W, Bulthuis MLC, Lely AT, Navis GJ, van Goor H. Tissue distribution of ACE2 protein, the functional receptor for SARS coronavirus. A first step in understanding SARS pathogenesis. *J Pathol*. 2004;203(2):631-637. doi:10.1002/path.1570
43. Ziegler CGK, Allon SJ, Nyquist SK, et al. SARS-CoV-2 receptor ACE2 is an interferon-stimulated gene in human airway epithelial cells and is detected in specific cell subsets across tissues. *Cell*. 2020;181(5):1016-1035.e19. doi:10.1016/j.cell.2020.04.035
44. Ibricevic A, Pekosz A, Walter MJ, et al. Influenza virus receptor specificity and cell tropism in mouse and human airway epithelial cells. *J Virol*. 2006;80(15):7469-7480. doi:10.1128/JVI.02677-05
45. Ferguson ND, Fan E, Camporota L, et al. The Berlin definition of ARDS: an expanded rationale, justification, and supplementary material. *Intensive Care Med*. 2012;38(10):1573-1582. doi:10.1007/s00134-012-2682-1
46. Vijayvargiya P, Garrigos ZE, Almeida NEC, Gurram PR, Stevens RW, Razonable RR. Treatment considerations for COVID-19: a critical review of the evidence (or lack thereof). *Mayo Clin Proc*. 2020;95(7):1454-1466. doi:10.1016/j.mayocp.2020.04.027
47. How ventilators help patients with COVID-19. Rush University Medical Center. Published April 2, 2020. Accessed September 16, 2020. https://www.youtube.com/watch?v=1V2n1xq4CrY
48. Meyerowitz EA, Vannier AGL, Friesen MGN, et al. Rethinking the role of hydroxychloroquine in the treatment of COVID-19. *FASEB J*. 2020;34(5):6027-6037. doi:10.1096/fj.202000919
49. Targeted update: safety and efficacy of hydroxychloroquine or chloroquine for treatment of COVID-19. World Health Organization. Published June 17, 2020. Accessed October 31, 2020. https://www.who.int/publications/m/item/targeted-update-safety-and-efficacy-of-hydroxychloroquine-or-chloroquine-for-treatment-of-covid-19
50. Chloroquine or hydroxychloroquine with or without azithromycin. COVID-19 Treatment Guidelines. Updated October 9, 2020. Accessed October 31, 2020. https://www.covid19treatmentguidelines.nih.gov/antiviral-therapy/chloroquine-or-hydroxychloroquine-with-or-without-azithromycin/
51. Search of: hydroxychloroquine. ClinicalTrials.gov. Published 2020. Accessed October 31, 2020. https://clinicaltrials.gov/ct2/results?term=hydroxychloroquine&cond=covid-19&Search=Apply&recrs=a&recrs=f&recrs=d&age_v=&gndr=&type=&rslt=
52. COVID-19 treatment and vaccine tracker. Milken Institute. Accessed September 11, 2020. https://covid-19tracker.milkeninstitute.org/
53. Folegatti PM, Ewer KJ, Aley PK, et al. Safety and immunogenicity of the ChAdOx1 nCoV-19 vaccine against SARS-CoV-2: a preliminary report of a phase 1/2, single-blind, randomised controlled trial. *The Lancet*. 2020;396(10249):467-478. doi:10.1016/S0140-6736(20)31604-4
54. Coronavirus disease 2019 (COVID-19): Situation Report – 73. World Health Organization. Published April 2, 2020. Accessed September 15, 2020. https://apps.who.int/iris/bitstream/handle/10665/331686/nCoVsitrep02Apr2020-eng.pdf?sequence=1&isAllowed=y
55. Coronavirus disease (COVID-19): similarities and differences with influenza. World Health Organization. Published March 17, 2020. Accessed September 7, 2020. https://www.who.int/westernpacific/news/q-a-detail/q-a-similarities-and-differences-covid-19-and-influenza
56. Park J-E, Ryu Y. Transmissibility and severity of influenza virus by subtype. *Infect Genet Evol*. 2018;65:288-292. doi:10.1016/j.meegid.2018.08.007
57. Hayward AC, Fragaszy EB, Bermingham A, et al. Comparative community burden and severity of seasonal and pandemic influenza: results of the Flu Watch cohort study. *Lancet Respir Med*. 2014;2(6):445-454. doi:10.1016/S2213-2600(14)70034-7
58. Bertram S, Heurich A, Lavender H, et al. Influenza and SARS-coronavirus activating proteases TMPRSS2 and HAT are expressed at multiple sites in human respiratory and gastrointestinal tracts. *PLOS ONE*. 2012;7(4):e35876. doi:10.1371/journal.pone.0035876
59. Matsuyama S, Nagata N, Shirato K, Kawase M, Takeda M, Taguchi F. Efficient activation of the severe acute respiratory syndrome coronavirus spike protein by the transmembrane protease TMPRSS2. *J Virol*. 2010;84(24):12658-12664. doi:10.1128/JVI.01542-10
60. Zhao Y, Zhao Z, Wang Y, Zhou Y, Ma Y, Zuo W. Single-cell RNA expression profiling of ACE2, the receptor of SARS-CoV-2. *Am J Respir Crit Care Med*. 2020;205(5):756-759. doi:10.1164/rccm.202001-0179LE
61. Sungnak W, Huang N, Bécavin C, et al. SARS-CoV-2 entry factors are highly expressed in nasal epithelial cells together with innate immune genes. *Nat Med*. 2020;26(5):681-687. doi:10.1038/s41591-020-0868-6
62. Glowacka I, Bertram S, Müller MA, et al. Evidence that TMPRSS2 activates the severe acute respiratory syndrome coronavirus spike protein for membrane fusion and reduces viral control by the humoral immune response. *J Virol*. 2011;85(9):4122-4134. doi:10.1128/JVI.02232-10
63. Kogure T, Suzuki T, Takahashi T, et al. Human trachea primary epithelial cells express both sialyl(α2-3)Gal receptor for human parainfluenza virus type 1 and avian influenza viruses, and sialyl(α2-6)Gal receptor for human influenza viruses. *Glycoconj J*. 2006;23(1):101-106. doi:10.1007/s10719-006-5442-z
64. van Riel D, den Bakker MA, Leijten LME, et al. Seasonal and pandemic human influenza viruses attach better to human upper respiratory tract epithelium than avian influenza viruses. *Am J Pathol*. 2010;176(4):1614-1618. doi:10.2353/ajpath.2010.090949
65. Shinya K, Ebina M, Yamada S, Ono M, Kasai N, Kawaoka Y. Influenza virus receptors in the human airway. *Nature*. 2006;440(7083):435-436. doi:10.1038/440435a
66. Lam S, Lombardi A, Ouanounou A. COVID-19: a review of the proposed pharmacological treatments. *Eur J Pharmacol*. 2020;886:173451. doi:10.1016/j.ejphar.2020.173451
67. AllocetraTM. Enlivex. Accessed September 11, 2020. https://www.enlivex.com/allocetra/
68. ExThera Medical | Seraph 100 | CE Marked device designed to treat bloodstream infections. ExThera Medical. Accessed September 11, 2020. http://www.extheramedical.com/exthera-seraph
69. Beyond Air submits investigational device exemption (IDE) to the United States Food and Drug Administration (FDA) for the treatment of COVID-19 patients. Beyond Air Inc. Published March 16, 2020. Accessed September 11, 2020. https://www.beyondair.net/news-media/press-releases/detail/99/beyond-air-submits-investigational-device-exemption-ide
70. Vir and Alnylam identify RNAi therapeutic development candidate, VIR-2703 (ALN-COV), targeting SARS-CoV-2 for the treatment of COVID-19. Investor Relations | Alnylam Pharmaceuticals, Inc. Alnylam. Published May 4, 2020. Accessed September 11, 2020. https://investors.alnylam. com/press-release?id=24796
71. Neurimmune and Ethris sign collaboration agreement to rapidly develop inhaled mRNA-based antibody therapy for the treatment of Covid-19. Neurimmune. Published January 4, 2020. Accessed September 11, 2020. https://www.neurimmune.com/news/neurimmune-and-ethris-sign-collaboration-agreement-to-rapidly-develop-inhaled-mrna-based-antibody-therapy-for-the-treatment-of-covid-19
72. The RECOVERY Collaborative Group. Dexamethasone in hospitalized patients with Covid-19 — preliminary report. *N Engl J Med*. Published online July 17, 2020. Accessed September 11, 2020. doi:10.1056/NEJMoa2021436

Medical Communicators, Meet Your New Authors—Patients!

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"Of course patients should be involved as co-authors of medical research papers. It's our story you're telling."

—Richard Stephens
Patient Coeditor, *Research Involvement and Engagement*
Patient Advocate and Patient Author

ABSTRACT

What should medical communicators know about patient authorship? In this article, we provide readers with answers to key questions that we have been asked by medical communicators (and their managers!) about patient authorship. This is an introductory article. After reading it, we hope you can see why there will be much more to write and read on this topic in the years ahead. Patient authorship has begun and is here to stay. That's good for patients, publications, and medical communicators. Patient authors can help plan, generate, and share publications. They can enhance the real-world relevance of publications by identifying unmet needs and sharing their unique and valuable insights from their lived experience. Patient authors can also extend the reach of publications by developing and disseminating plain-language summaries of publications. With appropriate training, medical communicators are well-positioned to support and guide patient authors and, as highlighted in this article, they can benefit from the personal and professional rewards that come from doing so.

WHAT IS PATIENT AUTHORSHIP?

Patient authorship is when patients meet the criteria required by journal editors (eg, the International Committee of Medical Journal Editors; http://www.icmje.org/recommendations/) to be listed as authors on a peer-reviewed publication. ("Patients" is used in a broad sense, as defined by the European Patients Academy, and includes individual patients, carers, patient advocates, patient organization representatives, and patient experts.)

HOW PREVALENT IS PATIENT AUTHORSHIP?

The prevalence of patient authorship is unknown and difficult to measure. However, American Medical Writers Association (AMWA) members should know that it IS happening. Patients are already authoring peer-reviewed publications in respected MEDLINE-listed journals (Figure 1).

Figure 1. Patients are already authoring peer-reviewed publications. They are meeting authorship criteria set by different types of journals. [a]Patients have coauthored publications with employees from pharmaceutical companies (eg, Pfizer, Novartis, UCB Pharma, GSK, Merck). These precedent publications challenge the view held by some industry employees that "patients can't publish." These publications should also help address potential "compliance concerns" about whether patients can meet the authorship criteria listed in publication guidelines and standard operating procedures.

Patient authorship is likely to become more prevalent, as it is now being encouraged by a number of influential funders (eg, Patient-Centered Outcomes Research Institute), patient advocacy organizations (eg, Patient Focused Medicines Development), and journals (eg, *The BMJ*).

WILL PATIENT AUTHORSHIP LEAD TO OTHER CHANGES?

Yes, patient authorship is leading to changes in

- Research and technology
  - Patient authorship is prompting new areas of research (eg, how to maximize the benefits and minimize the risks of patient authorship; https://researchinvolvement.biomedcentral.com/articles/10.1186/s40900-020-00190-w). As we highlighted in this systematic review, patient authorship research would be enhanced if there was an efficient way to identify patient-authored publications. For example, it would be ideal if patient authors could list at least one of their affiliations as "Patient Author," as this would help publishers submit patient-author-tagged publications to PubMed. Researchers could then use the PubMed Advanced Search function (Affiliation = Patient Author) to retrieve patient-authored publications. We have tested this new function and it works, but the number of appropriately tagged publications is currently limited. We are now working with patient advocates and publishers to encourage and improve "Patient Author" tagging.
  - Patient authorship is also leading to changes in technology. The most widely used publication management software has been updated, and new metrics have been added. Sponsors can now document and measure the extent of patient involvement in publications.
- Publication steering committees
  - Patient authors can provide unique, valuable, and real-world insights into publications. As sponsors are seeing the positive impact that patient authors are having on *preparing* publications, they are now looking to involve patients in *planning* publications (eg, patients serving on publication steering committees). We have recently collaborated with UCB Pharma, a leader in the field of patient involvement in publications and a highly regarded patient advocate, to conduct and present research on how to establish a patient publication steering committee for a global biopharmaceutical company (https://figshare.com/articles/poster/Patient_Publication_Steering_Committees_-_feasibility_case_study/12561935).
- Training
  - Patient authorship is leading to the development of new training courses focused specifically on patient advocates. Patients are recognizing that planning and writing publications requires certain skills and knowledge. We are now working with patient advocacy groups to develop publication training courses for their members (https://wecanadvocate.eu/publicationstraining/).
  - We have also worked with the AMWA Knowledge Builder team to develop the first online patient authorship training course for medical communicators (https://cdn.ymaws.com/www.amwa.org/resource/resmgr/journal/spotlight/amwaeducationatyourfingertip.pdf).

OUTCOMES

How Will Patient Authorship Affect Established Processes?

Patient authorship should align with established processes for authorship (eg, meeting authorship criteria, submitting disclosures). However, as the current "pool" of experienced patient authors is limited and hard to find, publication processes will need to evolve to identify, train, and mentor new patient authors.

Patient authorship may also enhance publication plans and processes by putting a stronger focus on

- ***Publication speed:*** Patient authors can be strong advocates for targeting reputable journals with fast turnaround times. For patient authors, timely sharing of results is likely to be much more important than a journal's impact factor.
- ***Publication access:*** Patient authors can be strong advocates for targeting open-access journals so that paywalls don't impede dissemination.
- ***Plain language summaries of publications:*** Patient authors can be strong advocates for summaries that help nonspecialists understand recently published research. A free and evidence-based toolkit, cocreated with patient advocates, publishers, sponsors, and plain language specialists, is available to help AMWA members prepare these summaries (https://www.envisionthepatient.com/plstoolkit/). Encouragingly, publishers appear to be making plain language summaries of publications open access, which is consistent with the overall move toward making more publications open access.

What Are the Overall Benefits of Patient Authorship?

A systematic review of patient involvement in publications (https://researchinvolvement.biomedcentral.com/articles/10.1186/s40900-020-00190-w)—coauthored with patients—has identified benefits to

- publications (eg, real-world relevance, broader dissemination),

- patient authors (eg, respected for input, new skills), and
- nonpatient authors (eg, access to new funding, new research topics).

EFFECT ON MEDICAL COMMUNICATORS

How Should Medical Communicators Prepare for Patient Authorship?

- Self-check: Address any personal bias you might have against patient authorship (eg, believing that patients can't meet authorship criteria). Patient authors are here and here to stay. Medical communicators must adapt to this "innovation."
- Know how to find patients who may be most suited to patient authorship (Figure 2): Patient diversity must be respected and, when it comes to involving patients in medicine-development activities (including publications), "one size does not fit all." Processes are now emerging for identifying and selecting potential patient author candidates (eg, by developing a patient author selection matrix based on prespecified, justifiable, and transparent criteria). A "patient expert" may be the most likely "type" of patient to have the capacity and capability to author publications. Patient experts have lived experience, as well as an understanding key principles of research ethics and practices.

Medical communicators may be most likely to work with patient authors who would be considered "informed and empowered."

- Complete the AMWA Knowledge Builder online training course on patient authorship for medical communicators!
- Use tools that can support ethical and effective patient authorship.
  - Engage patients as authors according to best practices (https://patientfocusedmedicine.org/bogp/book-of-good-practices-2019.pdf).
  - Ensure patient authors know their rights and responsibilities as authors. The Plain Language Summary of Good Publication Practice 3 is available (https://figshare.com/articles/Plain_Language_Summary_of_Good_Publication_Practice_Guideline/11292047).
  - Evaluate the patient authorship experience for patient and nonpatient authors to ensure continuous improvement (https://www.tandfonline.com/doi/full/10.1080/03007995.2019.1587943).
- Review and apply the evidence on how to maximize the benefits and reduce the risks of involving patients as authors of publications (https://www.tandfonline.com/doi/full/10.1080/03007995.2019.1587943).
- Monitor and contribute to #GPP4 (https://twitter.com/hashtag/gpp4) and #PatientAuthor (https://twitter.com/hashtag/patientauthor) on Twitter. The content on #GPP4 should help ensure that the Good Publication Practice 4 guideline addresses patient authorship and other topics relevant to patient involvement in publications (eg, plain language summaries, publication steering committees). The content on #PatientAuthor includes an increasing number of examples of patient-authored publications and updates on hot topics related to patient authorship.
- Be aware of and use the GRIPP2 guidelines (https://www.bmj.com/content/358/bmj.j3453) when reporting patient involvement in research (eg, when patients are involved as authors).
- Be prepared to feel the enjoyment and pride that can come from working with patients on publications that focus on the real-world needs of patients (https://figshare.com/articles/journal_contribution/Patient_involvement_in_publications_Top_5_tips_for_Medical_Affairs_profdessionals/13326734).
- Help build the evidence base to guide patient authorship best practices by publishing papers about your patient

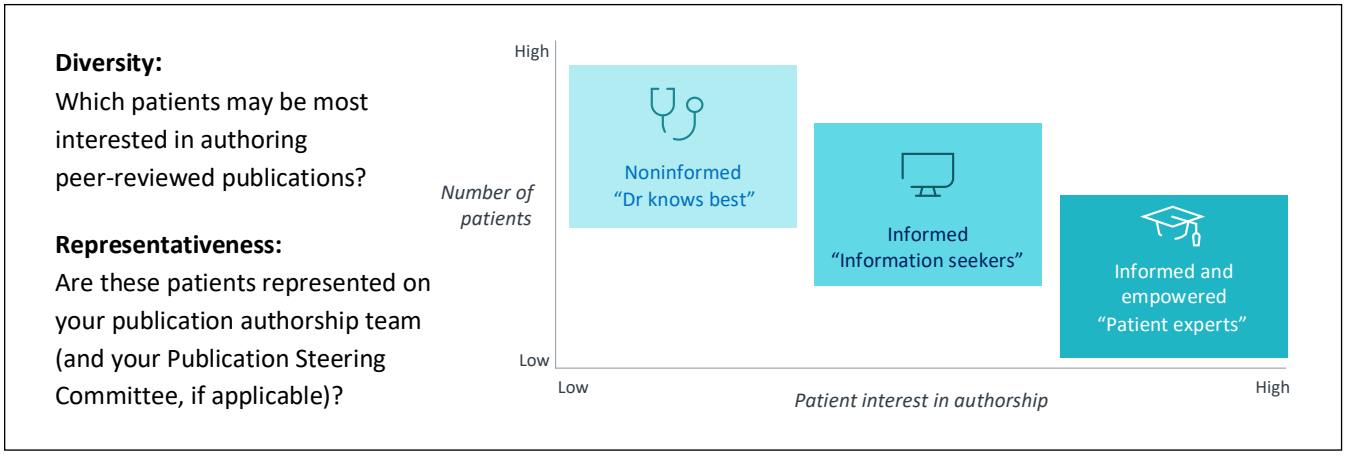

Figure 2. Patients as authors—which patients?

authorship experience. Richard Stephens, the world's first patient coeditor of a MEDLINE-listed journal, makes a compelling call to action in this 1-minute video.

FUTURE DIRECTIONS

Patient authorship is an innovation in publication practices, and research on this topic is expected to increase. A broad and robust evidence base on patient authorship would help guide future practices. Research on patient authorship might include bibliometric analyses (eg, quantifying the number and type of publications with patient authors and changes over time), real-world testing of the value of published recommendations on patient authorship (https://researchinvolvement.biomedcentral.com/articles/10.1186/s40900-020-00190-w), and a review of patient advocate publications on the backlash that may occur if researchers do not include patient authors on patient-relevant publications (https://onlinelibrary.wiley.com/doi/full/10.1111/hex.13087). Medical communicators may also be in a position to work with patient authors to publish case studies about their collaboration experience (eg, what worked well, what didn't).

SUMMARY

The value of involving patients as advisors across a spectrum of research activities (eg, study design, data and safety monitoring, needs assessment) is being increasingly recognized. The publication and communication of research is now joining this list of patient-enhanced research activities. Patients can add important context, clarity, and perspective to results through their lived experience (indeed, they may be the only authors with firsthand knowledge of living with the disease 24/7), facilitate broad and timely dissemination of relevant information, and help to identify and prioritize unmet needs that could be addressed in future publication plans. Testament to this evolution in the publication landscape, a growing number of journals, government agencies, pharmaceutical companies, and other groups are changing their practices to facilitate patient involvement in publications. Although writing for patients may be familiar territory for some medical communicators, working directly with patients—as authors—may not be. In this new era of patient authorship, medical communicators need to gain knowledge of emerging patient authorship resources and guidelines, and develop an appreciation of the unique and valuable contributions patient authors can bring to publications. Patient authorship also opens up new opportunities for medical communicators (eg, to support and guide patient authors on publication norms, review processes, and the roles and responsibilities associated with authorship). Patient authorship may be new, but it is here to stay…and deservedly so!

"Patient authors can help make publications relevant and readable. Change the input, enhance the output."

—Beverley Yamamoto
Patient Advocate (Rare Disease) and Patient Author

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Research Ethics Is a Tricycle Not a Unicycle: The Role of Researchers, Reviewers and Editors

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The discussion of research ethics often focuses on the actions and intentions of the researcher. And researchers do have important ethical duties to the participants in their studies; to their institutions and organizations, their discipline, and their profession; and to the journals, magazines, proceedings, white papers, and reports to which their research is submitted for publication. Reviewers and editors, however, also have important ethical responsibilities, as do the readers in their interpretation and application of research findings. That is, research ethics can be characterized as a tricycle, steadied and stabilized by each of its wheels—or the different individuals involved in the overall research endeavor—instead of a precarious unicycle operating exclusively on the skill of the researcher.

ETHICAL FRAMEWORK

In research ethics, as in any discussion of ethics, one must have a set of values with which to analyze potential ethical conflicts. Bear in mind there are often no "black-and-white" answers. It seems apropos, in this forum, to use the six tenets defined in the *Society of Technical Communication (STC) Ethical Guidelines* (https://www.stc.org/about-stc/ethical-principles/) to create a foundation for understanding research ethics in the field, as each tenet has implications for conducting research:

➤ ***Legality.*** This ethical tenet pertains to research ethics in a number of ways. When there are human subjects, particularly with medical research, privacy laws apply. And when research results are published—as is generally the case—copyright laws govern subsequent use of the published entry by others, whether that use be academic or commercial. In reporting their findings, researchers sponsored by or partnering with a corporation must not compromise the company's intellectual property and proprietary information. The same holds true for data considered sensitive or classified by the United States or another government.

➤ ***Honesty.*** This ethical tenet obviously applies to all three wheels of the research ethics tricycle: researcher, reviewer/editor, and reader. Yet, as critical as it is, honesty is often assumed to be the case on the part of researchers, reviewers and editors, and readers. Honesty applies in the researcher's gathering of data (witness how readily empirical data can be falsified or how easily a survey can be "slanted" to yield the desired results); in the presentation of the data (witness "lying with statistics" or misleading visuals, which should be "refereed" by reviewers and editors); and in the interpretation and promulgation of data and research results by readers.

Consider the laboratory partners in Chemistry 101, under pressure to get an "A" in the course, conducting an experiment to determine the specific heat of aluminum by heating 10 grams of aluminum to Y°C, immersing it in 100 milliliters of water at Z°C, measuring the resulting change in water temperature, and applying the appropriate formula:

Partner 1: "What temperature do you have?"
Partner 2: "What do you *need?"*
Partner 3: "71°C would be about right."
Partner 4 (squinting at thermometer): "What do you know—70.9°C! Amazing!"

➤ ***Confidentiality.*** This ethical tenet overlaps legality when it comes to the privacy of research subjects. When recording, archiving, and reporting data from participants in a research study, researchers are ethically bound to protect the anonymity of participants.

They also must ensure research subjects are aware of confidentiality issues via disclosure and release forms.

Confidentiality also applies to the "blind peer review" process that governs the acceptance of research articles for publication in technical journals.

➤ ***Quality.*** This ethical tenet (as it applies to research, particularly the reporting of research findings) is composed of four attributes:

1. Objectivity means the researcher should not have a bias or a self-interest in interpreting and presenting results of the study. Consider, for example, a pharmaceutical or medical research project where the primary goal in development testing is gaining market share rather than patient wellness. Data should be presented and interpreted strictly on its merits rather than "slanted" to serve the interest of the researcher or his/her sponsor. One recalls the famous commercial: "Four out of five dentists surveyed recommend sugarless gum for their patients who chew gum." What the slogan leaves out is the number of dentists approached by the survey team (10? 100? 1000?) and the number who declined to participate. It also makes clever use of the restrictive clause "who chew gum," as it omits what the surveyed dentists might have said about gum-chewing in general and, using the word recommend, implies a broad endorsement for what is actually a narrow caution directed only to patients who are already chewing gum.

2. Thoroughness involves using appropriate and sufficient research methods and populations and subjecting findings to statistical analyses or equally rigorous processes for ensuring validity and reliability. A single study is unlikely to offer incontrovertible evidence: the more familiar you are with the findings of related studies, as well as the limits of their validity and reliability, the more credible and ethical will be your application of research findings.

For example, if 60 people in a survey of 100 technical communicators in the United States thought that Helvetica was superior to Times New Roman for legibility in a side-by-side analysis of two 1-page business letters, you would be wrong to claim that "a majority of technical communicators prefer Helvetica to Times." You would also be misguided if you were to switch all of your organization's documents to Helvetica because "research proves Helvetica is more legible" or if you were to encourage colleagues to stop using Times altogether. The only logical and ethical claim or action in this case is to identify the finding as "potentially significant," meriting continued research with other populations and other kinds of documents.

3. Accuracy applies to the collection, measurement, analysis, and reporting of findings. It requires a meticulous awareness of detail and scrupulous attention to precision throughout the research process. Accuracy refers not only to *measuring* research results (see "Honesty" earlier). It also requires us to avoid both exaggeration and gross simplification in *presenting* and *interpreting* results.

Take, for example, a television station reports "60% of callers to the station support Proposition X, and 40% are opposed." Although this finding might look impressive, its accuracy is impossible to determine without more information. When and for how long a period were calls received? Were these calls about Proposition X solicited or unsolicited? How many actual calls were received? Were any of these calls from the same caller? Is 60% exact or approximate (and if approximate, is it rounded up or rounded down)? A more accurate report would be: "We asked you to call us about Proposition X. We received 36 calls from different telephone numbers on Monday evening between 6 and 9 PM, with 21 supporting Proposition X and 15 opposed."

4. Clarity is paramount in presenting research results. In technical communication, clarity is achieved by presenting information as simply as possible without oversimplifying.

This raises an interesting question: clarity for whom? Other subject matter experts in the area being researched, or an educated lay reader? The answer, of course, is audience-driven; thus, it would be appropriate for an article in a research journal to be written at a scholarly level, but not necessarily in the undefined esoteric jargon of the specific area of research. (Too often, researchers lapse into unbridled sesquipedalian "academese"—like this!—leading the reader to conclude they are more interested in impressing rather than informing.)

➤ ***Fairness.*** This ethical tenet, rooted in honesty and respect for others, covers considerable territory in research ethics. When researching a controversial subject involving opinions and judgments, the researcher ought to present all sides of a debate even if he/she disagrees with some of the opinions. Fairness is particularly important in constructing surveys, gathering data, and interpreting results (consider the dentists "not surveyed" in the above example). Fairness is critical in administering a test and interpreting the results. Witness the misguided thinking and manifest bigotry generated by tests riddled with culturally biased questions that purport to demonstrate how one race is genetically inferior to another in native intelligence.

➤ ***Professionalism.*** The description of the sixth STC ethical tenet, while broader in its intent, applies directly to a careful review of a research article by others: "We evaluate communication products and services constructively and tactfully, and seek definitive assessments of our own professional

performance." As described later, professionalism in research includes the process of reviewing, critiquing, and providing comments on research results prior to making a decision to publish them (e.g., publish as is with minor editing, publish with revisions, don't publish).

Now let's apply an ethical framework to the three wheels of the research ethics tricycle.

RESEARCHERS

The first wheel of the aforementioned research ethics tricycle is that of the researchers. Their ethical duties have been the subject of extensive scrutiny, especially regarding the protection of participants in research studies. And we know that the ethical researcher must be objective, fair, and professional.

Agendas and Objectivity

Would you trust the research on the potential environmental impact of fracking for oil if the researchers worked for a major oil company? Conversely, would you accept the results of a research study on the same subject by an environmental protection or conservation organization?

A researcher could have a personal agenda that jeopardizes the integrity of the research, be it simply the professional recognition of getting published (as in the academy's "publish or perish" syndrome) whether or not the research is legitimate or even pertinent to the field, or the researcher could be seeking financial aggrandizement (as in marketing a product or service for oneself or one's employer). Or a researcher might allow personal beliefs to influence the structure, execution, and reporting of a study on cloning or stem cell genetic research, Darwinism vs. Creationism, medical marijuana, or the origins of sexual orientation (nature vs. nurture).

Inclusivity and Exclusivity

A less-examined aspect of ethical research, however, concerns the inclusivity or exclusivity of the research project. With research involving human participants, depending upon the nature of the research (trial medication vs. placebo, opinion survey, even a political poll), the demographics of the study group are obviously key both to the relevance of the research and the validity of the results.

Is the study group representative—that is, is it inclusive or does it exclude key demographic sectors? Is the study group the right sample for the subject being researched? Is it balanced for gender, ethnicity, age, educational level, and other cultural factors? Is it open for participation by persons with disabilities? For example, little has been addressed about a researcher's obligation to make research projects accessible in recruiting participants and reporting results. Such factors have pronounced implications for what the results of research mean, how widely they can be applied (if at all), and if they can be tested or verified.

Availability and Accessibility

What about the *availability* and *accessibility* of the results of the research? How and where will they be published? Will they be published online, in a printed journal, or both? Is the printed or online journal open to others doing research in the field? Is the online journal in accessible format for readers with disabilities such as blindness (e.g., narrative text properly formatted for a screen reader, text descriptors provided for visuals)? All are central ethical factors the researcher needs to consider when reporting results.

If the research involves human participants, will the results be available and accessible to the participants to review? If so, will they be expressed in language and visuals the participants can understand? And will the results be released "as is" or after having been "laundered" by the special interest agent who commissioned the study? Such factors are key to address, for they not only have important ethical implications, they could also lead to serious legal consequences.

Relevance of Research Topic

One may ask if there are ethical implications to the choice of what subject to research. Does a researcher have an ethical responsibility for his/her research to yield some specific "return on investment" in terms of the importance of the results to the collective body of knowledge (pure research) or its potential for human benefit or avoidance of harm (applied research)?

For example, is it "OK" for a doctoral dissertation to be on a totally obscure topic such as the migratory patterns of the speckled Malaysian crayfish, the only tangible benefit of which is to earn the writer a PhD? Be careful before answering that question too quickly: consider how many times human knowledge has ultimately benefitted from discoveries in the most unlikely of areas.

Is personal or corporate profit a legitimate basis for research? Be careful answering that question as well, lest you throw out the baby (the benefitting patient) with the pharmaceutical bathwater (the immense profits on specialized medications).

REVIEWERS AND EDITORS

The second wheel of the research ethics tricycle involves the process commonly used to share research results via research publications, such as journals (e.g., STC's research journal *Technical Communication*). This process involves *reviewers and editors* in a cycle of activities:

The Review Process

After an author submits a manuscript, the editor acknowledges receipt. The editor then checks the manuscript for anything that might identify the author and deletes any identifying information from the text or the properties of the file itself. The editor identifies three individuals who would be qualified to serve as reviewers for this manuscript and inquires about their willingness to serve as reviewers.

If they are willing, the editor sends each a copy of the anonymized manuscript and a copy of the reviewer guidelines (i.e., the criteria for evaluation of manuscripts). The reviewers read and comment on the manuscript, sometimes annotating their copies with specific notes, corrections, and suggestions. The reviewers then return their reviews and annotated manuscripts to the editor and note their recommendation in terms of publishing the manuscript. This recommendation usually falls into one of three categories:

- Accept (publish manuscript as is, except for minor formatting to the journal's editorial style)
- Reject (do not publish manuscript)
- Revise and resubmit (revise manuscript according to reviewer suggestions and submit revised manuscript for a second review)

The editor summarizes the comments of the reviewers and reports to the author (and later the reviewers) on the disposition of the manuscript. If the recommendation is to revise and resubmit, the editor advises the author on how to implement proposed revisions, and the cycle of review proceeds again.

The Ethics of Review

We ordinarily imagine editors and reviewers as perceptive and impartial judges, and the majority deserve this reputation. Dubious behaviors, however, do occur. For this reason, different mechanisms have been developed to ensure ethical behavior during the overall review and publication process. The Committee on Publication Ethics (COPE) represents one such initiative.

Formed in 1997 by a small group of journal editors in the United Kingdom and now 10,000 strong internationally, COPE is dedicated to "promoting integrity in research publication." COPE advises editors on how to address ethical questions and identifies cases of ethical failures by editors and reviewers, including

- Breach of reviewer confidentiality (i.e., a reviewer talking to colleagues about a manuscript he/she is reviewing, using or sharing information from this manuscript)
- Reviewer directing apprentice to review a manuscript (i.e., instead of the assigned reviewer reading and evaluating the manuscript)
- Editor favoring certain authors (i.e., the editor chooses reviewers he/she knows will be receptive to the manuscript)
- Editor as author in same journal (i.e., raising questions about the validity of the anonymous review process)
- Review of a book written by the journal's editor (i.e., raising questions about the credibility and objectivity of the journal's book reviews)

Reviewers and editors have several ethical obligations, including to the study's participants, to make sure the contribution of the participants to the study is valued and respected with conscientious, principled, scrupulous consideration of the submitted manuscript. All of a researcher's efforts to sustain the privacy and humanity of his/her participants is for naught if reviewers and editors act without integrity in their evaluation of a manuscript.

Ethical Review Practices

To achieve such ethical behavior in the reviewing and reporting/publishing of research results, reviewers and editors must

- Accept for review only manuscripts on subjects of pertinent expertise that offer no conflict of interest
- Give a manuscript a conscientious reading in a timely manner (i.e., usually 30 to 60 days)
- Offer constructive comments to the author about how to revise (i.e., derogatory and dismissive comments make neither the manuscript nor the researcher better and thus contribute little or nothing to the discipline but a hostile environment)
- Maintain confidentiality about the review process of a manuscript, never discussing the nature or number of revisions or the comments and corrections offered
- Maintain confidentiality about the information in a manuscript, neither using nor sharing this information until it is published
- Report possible ethical violations (e.g., plagiarism, fabrication, duplicate submission)

For a detailed list of reviewer responsibilities, check the COPE guidelines at publicationethics.org/resources/guidelines-new/cope-ethical-guidelines-peer-reviewers.

READERS

The third wheel of the research ethics tricycle consists of the readers. They may be considered the "steering wheel" because it is their interpretation, acceptance or rejection, and possible distribution of the results that govern where the research results are going next. This could be to the credentialed body of the knowledge within a discipline, back to the research

community for replication or further study, or to the boneyard of discredited or irrelevant research.

We, as the readers of research, have important ethical responsibilities to the discipline. We must be meticulous about accuracy in the interpretation and distribution of research findings. We must neither minimize nor exaggerate a study's results but recognize and acknowledge the limits on reliability and validity. We do no service to the discipline if we characterize implications as conclusions or generalize widely from narrow pilot projects, as illustrated in the above discussion of the survey on Helvetica versus Times New Roman typefaces. We must resist the temptation to simplify research findings in the hurried pursuit of practical applications. A failure to be cautious puts practice on a fragile foundation, generates misguided claims, and makes us look impulsive instead of innovative—superstitious instead of scientific. All of these ethical factors are important for readers to fulfill their vital role in ensuring the integrity of research and the publication of results.

CONCLUSIONS

In summary, from test tube to test report, an ethical research project represents honest, accurate, and objective study of a subject of significance to the discipline and potential social benefit. The conclusions or preliminary findings are consistent with the data gathered in research. The results are presented clearly and without bias in an appropriate forum using language and statistics the audience can understand, filtered and refined by expert reviewers and editors. And the reader applies sound judgment in legitimately interpreting and conveying the results to others.

If any one of the three wheels of the research ethics tricycle breaks loose (biased or sloppy researcher, prejudiced or unfair reviewer or editor, impulsive and judgmental reader), the tricycle wobbles and crashes.

If all three wheels are turning smoothly, the tricycle reaches its destination—honest, responsible research that forms a trusted foundation for further exploration.

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Dan Voss (danvoss999@gmail.com) is a "retired" but still active proposal specialist for Lockheed Martin who also provides industry training workshops in business and technical communication. An STC Fellow, Dan is recognized for his publications and presentations on diverse subjects at STC's international conference and was the recipient of the President's Award for his efforts on student outreach. With Lori Allen, he coauthored *Ethics in Technical Communication: Shades of Gray*, published in 1998—for which he became the only non-engineer to receive Lockheed Martin's coveted Author-of-the-Year recognition. He has coauthored four research articles for STC's Technical Communication as well as four articles for Intercom. Dan and Bethany Aguad, then a student at UCF, co-managed STC's student outreach and mentoring initiative from 2012–2014 and presented at Leadership Day at two Summits. They also coauthored Chapter 5, "Teaching the Ethics of Intercultural Communication," in the anthology of research articles *Teaching and Training for Global Engineering*, edited by Kirk St.Amant and Madelyn Flammia, published in 2017, and already nominated for an award.

SOCIAL MEDIA

Harnessing the Power of Social Media to Enhance Health Communication

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SOCIAL MEDIA IN HEALTH COMMUNICATION: THE GREAT LEVELER

In 1721, as the lethal smallpox epidemic reached the town of Boston, the Puritan minister Cotton Mather used carefully crafted pamphlets to convince many Bostonians to get inoculated against the virus[1]; his campaign helped save thousands of lives and paved the way for the systematic inoculation against smallpox. Two centuries later, as a deadly influenza pandemic was raging through the United States while the government was downplaying the virus,[2] officials in San Francisco decided to act. In October 1918, they published a full-page newspaper advertisement urging the public to "Wear A Mask and Save Your Life!" This and subsequent messaging efforts succeeded in curbing the spread of the virus, saving countless lives. Today, as we are faced with another global pandemic, efficient health communication[2] may represent one of our most effective ways to fight the spread of coronavirus—perhaps secondary only to an effective vaccine, which currently remains elusive.

Health communication has become a powerful tool for promoting awareness of health issues and improving personal health choices. Health communication campaigns, the most utilized method for health messaging, have relied on traditional media to successfully promote health issues, such as awareness about reproductive health, or human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome and cancer awareness and prevention. Social media has fundamentally changed health communication in new and powerful ways: it reshapes the dynamic between the message sources and audiences; it engages audiences and allows them to shape and amplify information, sometimes on a global scale; it increases interactions with others and enables peer/social emotional support; and it facilitates public health surveillance.[3] Social media also provides access to information and enables communication for people of all backgrounds, regardless of their income and geographical location. It has arguably become the great leveler for communication and access to information in the new millennium.

In an ever-expanding universe of online information, there is an urgent need for medical communicators who can absorb, analyze, and synthesize the constant flow of health care–related content and communicate it efficiently to an increasingly larger and more diverse audience while promoting sound ethical standards. Medical communicators have increasingly adopted social media to gather and disseminate health information. Surveys conducted by American Medical Writers Association (AMWA) members reveal that medical communicators are engaged on a variety of social media platforms—from social networks and blogs to media sharing, collaborative editing, discussion forums, and automatic mining of health information. Thus, social media can act as both a professional and social catalyst for medical communicators, allowing them to better serve their audiences.

HOSPITALS AND MEDICAL SCHOOLS: CENTRAL PLAYERS IN HEALTH COMMUNICATION

Medical communicators now have access to health information provided by new players in the online health communication sphere: hospitals and medical schools, which have recently integrated social media into their communication strategies. Perhaps the most important contribution of hospitals and medical schools to health communication is that they generate a large volume of high-quality health-related information—from fundamental, preclinical, and clinical research to clinical studies and authoritative information about disease mechanisms, prevention, and spread, as well as novel treatments. Clinicians and biomedical researchers are arguably the most reliable sources of medical information and have greatly contributed to health communication. In an information ecosystem where reliability is key,[3] hospitals and medical schools have the potential to become key players as the most trusted sources of health information.

To gain insight into the social media practices and communication strategies of hospitals and medical schools, we surveyed 257,250 online posts from the top 10 US hospitals, as well as 94,332 posts from the top 10 US medical schools, from July 2009 until September 15, 2020. Our in-depth survey, which used application programming interfaces to retrieve posts and collect metadata, covered the Facebook, Twitter, and Instagram platforms.

Our survey shows that both hospitals and medical schools have increasingly relied on social media platforms as a means of communication. We found that some hospitals and medical schools have a large audience and post information frequently; the overall activity for all hospitals and medical schools has steadily increased in the past 10 years (Figure 1). Collectively, the top 10 US hospitals have 10.7 million followers on the 3 social media platforms surveyed; the top 10 medical schools have a total of 3.4 million followers. Twitter is the preferred platform for both hospitals and schools, with about 3 times more posts on average than Facebook and Instagram.

We next analyzed the informational content of social media posts. Word-cloud analysis was used to generate visual summaries of all posts taken in aggregate for hospitals and schools. In 2019, hospitals were mainly communicating about patients and health, as well as cancer, research, and treatments; medical schools covered similar topics, as well as topics related to students and research. As of January 2020, when the novel

Hospital	Number of Followers			Average Posts per Month		
	Facebook	Twitter	IG	Facebook	Twitter	IG
Mayo Clinic	1,188K	2,038K	276K	61	326	20
Cleveland Clinic	1,958K	1,982K	122K	73	571	14
Johns Hopkins Hospital	647K	598K	129K	74	262	10
NY Presbyterian	135K	48K	44K	30	147	25
UCLA Medical Center	310K	41K	48K	12	166	33
Massachusetts General Hospital	96K	52K	32K	72	140	37
Cedars-Sinai Medical Center	72K	26K	21K	39	185	18
UCSF Medical Center	256K	67K	10K	12	146	14
NYU Langone Hospitals	44K	28K	24K	40	132	21
Northwestern Memorial Hospital	82K	22K	21K	38	103	15

School	Number of Followers			Average Posts per Month		
	Facebook	Twitter	IG	Facebook	Twitter	IG
Harvard	828K	330K	272K	35	155	8
Johns Hopkins	647K	598K	129K	74	262	10
Perelman/Penn	6K			11		
NYU/Grossman	8K	9K	6K	8	17	3
Stanford	100K	289K	110K	16	93	14
Columbia	12K	12K		22	49	
Mayo	2K	4K	8K	3	15	4
UCLA	29K	3K	6K	11	15	8
UCSF	11K	27K	3K	2	58	2
Wash/St. Louis	15K	19K	4K	21	57	5

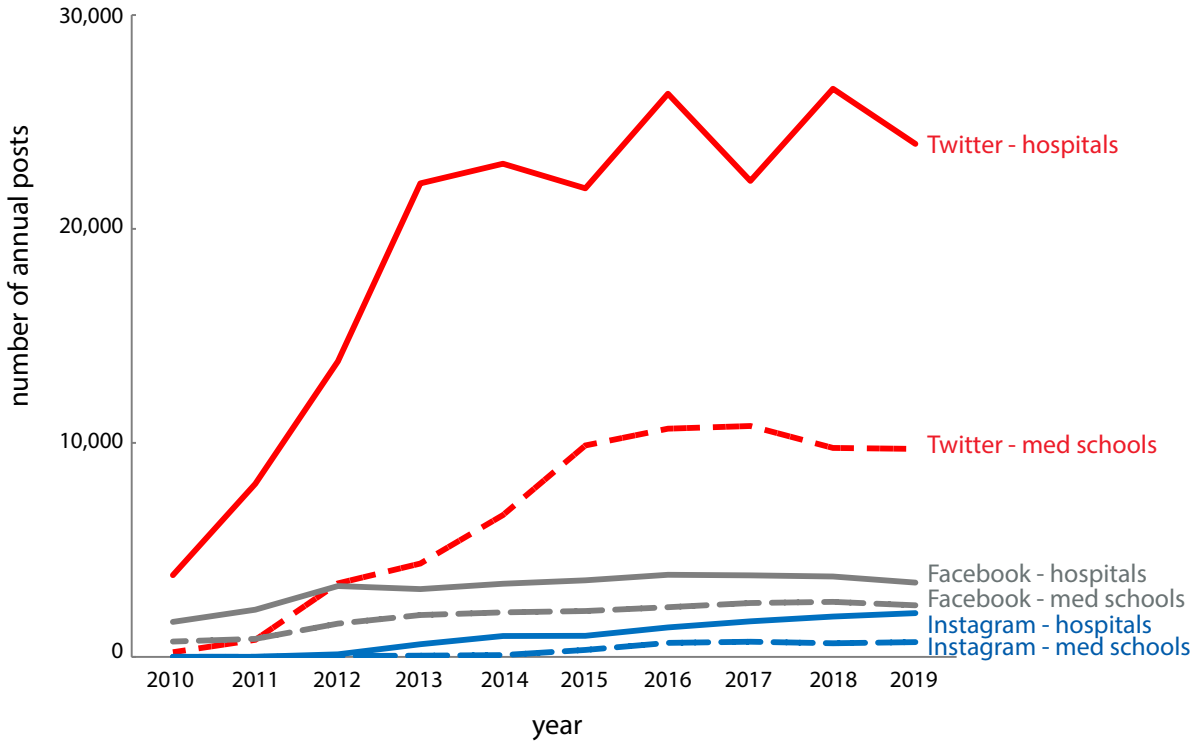

Figure 1. *Top*: The social media presence of the top 10 US hospitals and medical (med) schools. Shown are the numbers of followers and average posts per month for Facebook, Twitter, and Instagram (IG) from January to June 2020. *Bottom*: Total number of annual posts on social media platforms for the top 10 US hospitals or the top 10 US med schools. K, thousand; NY, New York; NYU, NY University; UCLA, University of California, Los Angeles; UCSF, University of California, San Francisco; Wash, Washington.

coronavirus emerged as a global pandemic, communication visibly shifted to topics related to the novel virus; its associated disease, coronavirus disease 2019 (COVID-19); and the current pandemic (Figure 2).

To gain a global view of social media communication by health institutions, we conducted a topic analysis of posts using the latent Dirichlet allocation web-based interactive visualization tool.[4] We identified distinct as well as partially overlapping communication topics for both hospitals and schools (Figure 3 on next page). Hospital posts covered topics such as hospital matters and topics related to doctors and nurses; we also found distinct clusters enriched in terms related to cancer, research, sports and injuries, stress, lifestyle, exercise, and nutrition. Medical schools covered topics related to education, research, disease risk, and school announcements. Interestingly, for both types of institutions, we found clusters containing positive messaging, such as congratulations, acknowledgments, and social interaction.

To begin assessing the impact of the informational content generated by hospitals and medical schools on the audience, we surveyed reactions to all posts over a 10-year period, as well as reactions to selected posts after a defined 7-day period following their publication. Overall, we found that retweets and replies on Twitter had the lowest engagement of the Twitter audience (in terms of likes and retweets). Using word clouds as a guide, we devised a list of 65 terms that were more commonly represented in online posts. We the performed a correlation analysis to determine whether the presence of certain

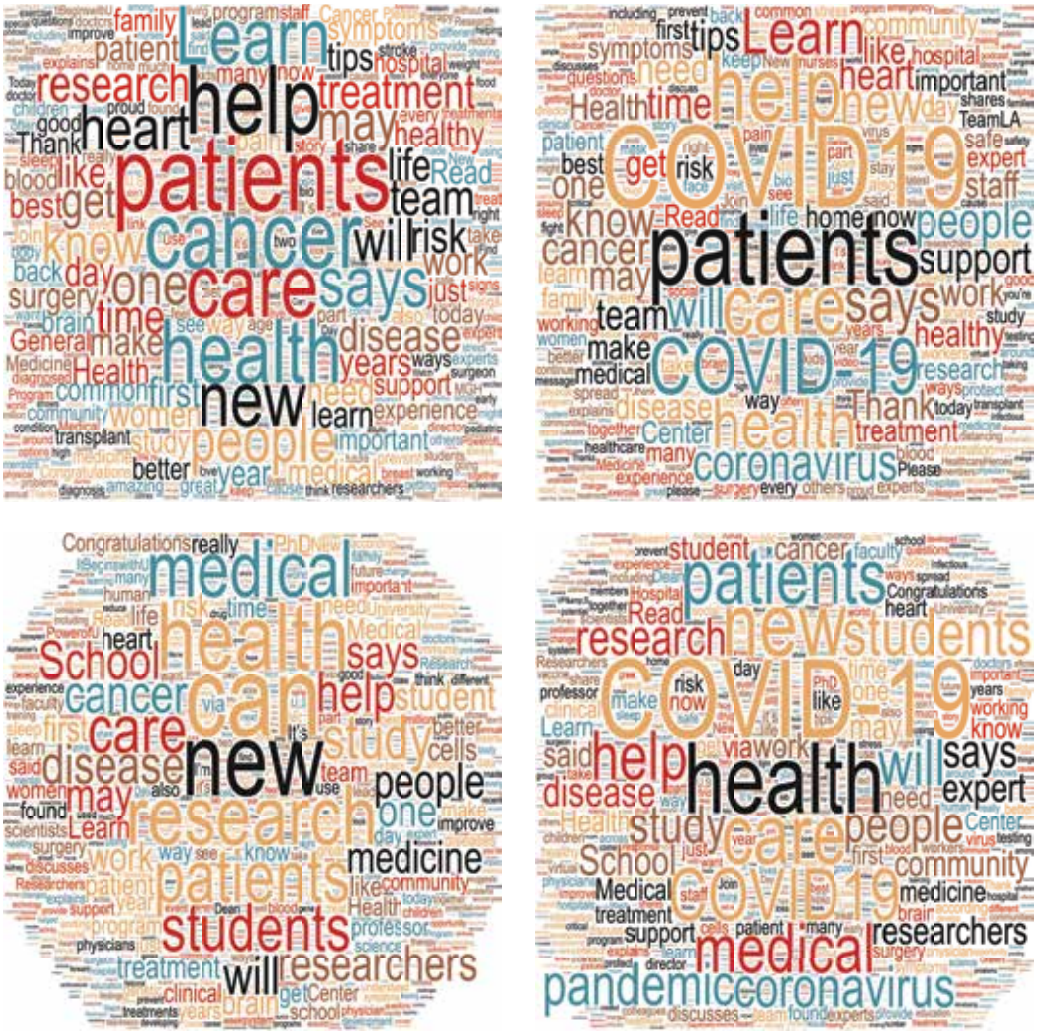

Figure 2. Word clouds of all social media posts on Twitter, Facebook and Instagram by the top 10 US hospitals in 2019 (*top*, *left*) and January–July 2020 (*top*, *right*); as well as by the top 10 US medical schools in 2019 (*bottom*, *left*) and January–July 2020 (*bottom*, *right*). COVID-19, coronavirus disease 2019; PhD, Doctor of Philosophy; VP&S, Columbia University Vagelos College of Physicians and Surgeons.

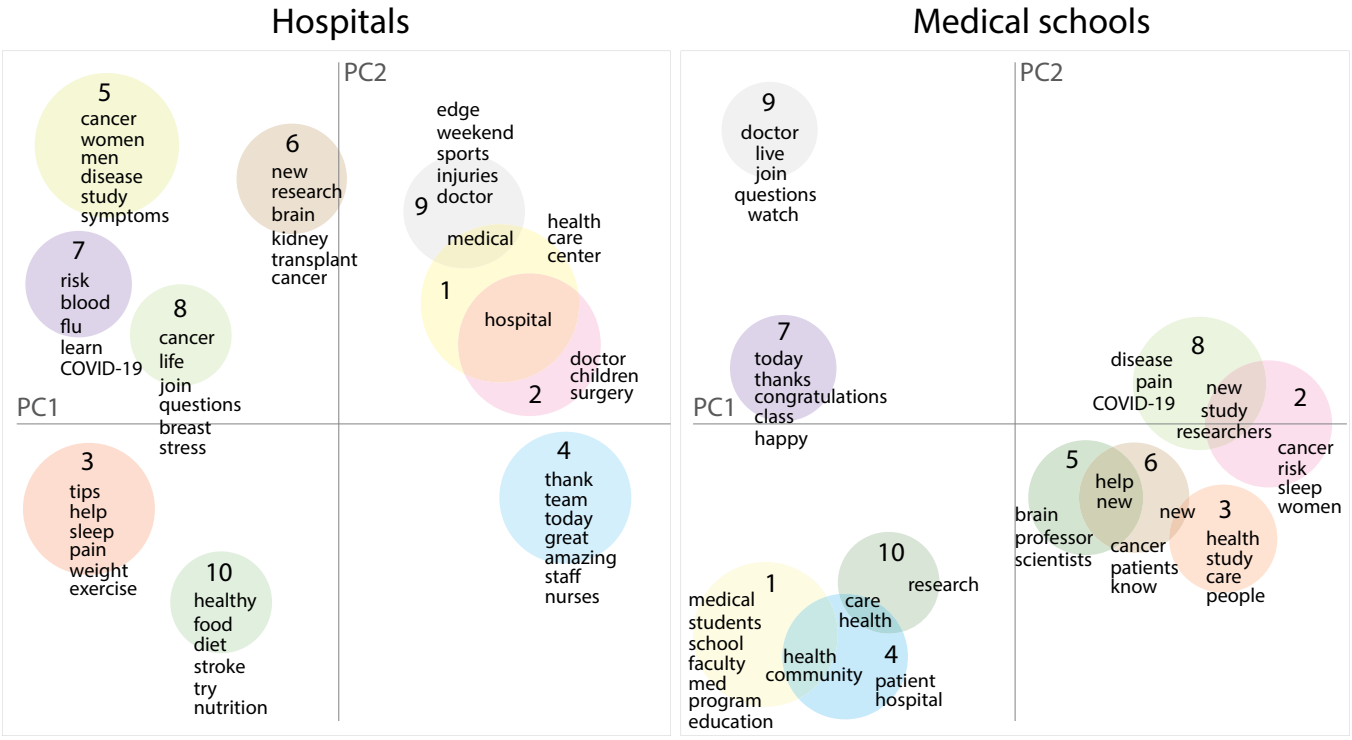

Figure 3. Global view of social media messaging by the top 10 US hospitals and medical schools. Topic modeling of 257,250 social media posts by the top 10 US hospitals and 94,332 social media posts by the top 10 US medical schools on Twitter, Facebook, and Instagram, between July 2009 and September 2020, using the latent Dirichlet allocation (LDAvis) web-based interactive visualization tool, identifies distinct communication topics. Shown is the intertopic distance map for the 10 most prevalent topics. The size of each circle is proportional to the relative contribution of each topic to the corpus. Principal component (PC) analysis (PC1 and PC2) reveals distinct as well as partially overlapping topics. For each topic, only the most frequent terms are shown. COVID-19, coronavirus disease 2019.

terms in a post predicts online user engagement by that post on Twitter. We found that the presence of terms related to COVID-19 (*coronavirus, virus, infect, mask, vaccine*) predicted higher online engagement, in terms of both likes and retweets. Other terms related to research and education (*disease, cause, expert, insight, professor, student*) as well as terms such as cause and community also predicted higher engagement on Twitter. Thus, communication strategies by health institutions that center around public health issues, the community, and research and education may be more effective in engaging audiences in a health-centered informational environment.

MAXIMIZING THE BENEFITS OF SOCIAL MEDIA FOR HEALTH COMMUNICATION

During the current COVID-19 pandemic, access to reliable health information is more vital than ever. Individual decisions and public policy regarding the most effective preventative measures, vaccinations, and treatments should follow the most rigorous public health, medical, and ethical standards and be based on solid and confirmed scientific findings. Health institutions such as hospitals and medical schools can uniquely contribute to this fight against the coronavirus by providing accurate information, educating the public, and engaging in policy discussions with other elements of the society.

A majority of US hospitals have at least some presence on social media,[5] and many universities and medical schools are leading voices on social media platforms. With the rapid disappearance of local newspapers and the shrinkage of local newsrooms (since 2004, more than 2,000 American local newspapers have gone out of business,[6] and newsroom employment has decreased by 50%), local hospitals and universities can provide critical health information that best serves the local communities, while interacting with the national media and the government to advocate for and represent the local communities.

The ideal outcome for health communication on social media is when the public is both informed online and actively engaged offline in behaviors that promote health. Informing and engaging all segments of the public on health issues has proven challenging for social media.[7,8] Barriers to the reach

of online media are the underrepresentation of minorities in social media posts and the low engagement of adolescents and young adults and the technological barriers that prevent older adults from effectively using digital technology.

To fully engage their audiences, social media platforms may need to use a combination of literary techniques, visual elements, and highlighting of specific content. Visual elements such as photos, videos, and interactive graphics appear to increase engagement. Analysis of diabetes-related Facebook pages, for example, found that the presence of imagery was a strong predictor of liking a post; the presence of imagery, dia-betes consequence information, and positive identity (including beliefs about the illness and its symptoms) lead to higher rates of sharing, whereas negative affect, social support, and crowdsourcing predicted higher rates of commenting.[9]

More research is needed to assess the full impact of social media on health and social outcomes, to maximize its benefits, and to limit its potential negative consequences. Numerous positive effects of social media campaigns and social media use on outcomes as diverse as cancer prevention and awareness, HIV prevention and communication, diabetes management, weight control, sexual health, and tobacco control have been documented.[10,11] However, some campaigns have been less effective than others, and the use of social media has been linked to negative outcomes, such as reduced physical and psychological health due to a sedentary lifestyle, loss of sleep, anxiety, depression, negative self-perception, and social isolation.[10]

In an online environment, in which the reach and effectiveness of electronic communication is often hindered by its inherent artificial nature, medical communicators can represent the much-needed human face of health information. By filtering and presenting the hard scientific data from a human perspective, medical communicators can connect with their audiences, educate them, and improve their lives. Furthermore, thanks to their unique combination of skills, medical communicators can also help improve the accuracy of health information by critically analyzing new data, providing context, and combating misinformation. The latest technological advances are an opportunity for medical communicators to engage their audiences in new and effective ways. Besides communicating on social media platforms, medical communicators can engage the public with interactive content and use the full spectrum of emerging tools—such as collective opinions, collaborative editing, discussion forums, and blogs—to reach, inform, and engage the public.

We argue that a synergism between all health institutions and professionals, including medical communicators, can advance individual and public health as well as societal empowerment to fight the current COVID-19 pandemic. Health professionals can provide timely and reliable information and limit the spread of misinformation; should coronavirus vaccines and treatments emerge that are safe and effective, it is the duty of all medical professionals to ensure that the public is informed in making rational decisions. Achieving these goals requires engaging the totality of the public in new and innovative ways. An analysis of the pamphlets written by Cotton Mather during the smallpox pandemic of 1721 revealed that his use of narrative techniques[1] was likely a contributor to their success in convincing the public to get inoculated against the deadly virus. Three centuries later, during a different pandemic, medical communicators, armed with scientific facts, powerful visuals, and diverse storytelling techniques, can again help save lives.

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References

1. Sivils MW. Dissecting the pamphlet literature of the Boston smallpox inoculation controversy. *Lit Med*. 2011;29(1):39-57.
2. Barry JM. Pandemics: avoiding the mistakes of 1918. *Nature*. 2009;459 (7245):324-325.
3. Moorhead SA, Hazlett DE, Harrison L, Carroll JK, Irwin A, Hoving C. A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *J Med Internet Res*. 2013;15(4):e85.
4. Sievert C, Shirley K. LDAvis: A method for visualizing and interpreting topics. In: *Proceedings of the Workshop on Interactive Language Learning, Visualization, and Interfaces*. Association for Computational Linguistics; 2014;63-70.
5. Griffis HM, Kilaru AS, Werner RM, et al. Use of social media across US hospitals: descriptive analysis of adoption and utilization. *J Med Internet Res*. 2014;16(11):e264.
6. Sullivan M. Ghosting the News: Local Journalism and the Crisis of American Democracy. *Columbia Global Reports*; 2020.
7. Myers T, Richardson F, Chung JE. Racial and ethnic makeup in hospital's social media and online platforms: Visual representation of diversity in images and videos of Washington, D.C. hospitals. *J Health Commun*. 2019;24(5):482-491.
8. Caplan A, Friesen P. Health disparities and clinical trial recruitment: is there a duty to tweet? *PLoS Biol*. 2017;15(3):e2002040.
9. Rus HM, Cameron LD. Health communication in social media: message features predicting user engagement on diabetes-related Facebook pages. *Ann Behav Med*. 2016;50(5):678-689.
10. Shi J, Poorisat T, Salmon CT. The use of social networking sites (SNSs) in health communication campaigns: review and recommendations. *Health Commun*. 2018;33(1):49-56.
11. Taggart T, Grewe ME, Conserve DF, Gliwa C, Roman Isler M. Social media and HIV: a systematic review of uses of social media in HIV communication. *J Med Internet Res*. 2015;17(11):e248.

CREATIVE WRITINGS

Mentorship Is a Sanctuary

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The bathroom stall was a sanctuary.
Behind the doors and upon that toilet, the lip-stained smile could be wiped and twisted.
Nurse?
Transporter?
Doctor!? You?
There, the tears could fall freely.
Emotions were allowed an outlet, but the hurt from their piercing words persisted.
Alone with profound sadness and frustration.
Questioning the worth, internally.

The call room was a sanctuary.
Behind the doors and on that bed, the powdered face could be peeled off and blackness shown.
Nurse?
Transporter?
Surgeon!? You?
There, the spirit could rest freely.
The colors could shine, but the hurt from their pungent words and disregard echoed.
Alone with profound darkness and frustration.
Questioning the worth, internally.

Now, mentorship is a sanctuary.
In front of them, I can genuinely smile and thrive from within.
Diversity?
Allyship?
Sponsorship?
Here, my future is promising.
Their encouraging words resonate, inspiring me to share them with who is where I have been.
Together with representation and vision.
Academic Surgeon?! Absolutely. Me!

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Achieving a Work-Life Balance as Medical Writers

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"We don't live to eat and make money. We eat and make money to be able to enjoy life. That is what life means, and that is what life is for." George Leigh Mallory, pioneering British mountaineer who vanished near the summit of Mt. Everest in 1924, almost 30 years before the first successful summit.

Every age seems to have its buzzwords and the "Work-Life Balance" would appear to be one of the prime candidates for our current age. Unfortunately, a brief browse around the internet reveals that there are many and varied definitions of the concept and suggestions on how best to achieve an ideal state of work-life balance. One quickly realizes that the perfect work-life balance is not some objective state but rather something very subjective and thus will differ for every person. Nevertheless, spending some 6 years in a Molecular Biology laboratory and 30 years as a medical writer (in both a small company and in "Big Pharma"), gives me a broad experience from which to draw what I believe are a few general principles of what is a good work-life balance as a medical writer and how to achieve it.

A number of recent sociology studies have indicated that the happiest and, perhaps even more importantly, the most effective and productive people in a wide range of occupations are those with a good work-life balance.[1] I think that even a moment's consideration would suggest why this would be true. Certainly, my personal experience is that I never can perform my best, whether writing, managing, or presenting a workshop, when I am stressed or burned out from the lack of a healthy work-life balance. This really ought to be obvious, one would think, as any form of activity (physical or mental) cannot be done continuously and requires occasional breaks for peak performance.

The research results in favor of a healthy work-life balance are fairly convincing in my opinion, but there is another line of evidence, which although not normally considered strong evidence is nevertheless most intriguing—case studies of people nearing the end of their lives, either due to disease or advanced age.[2] What is so fascinating about these individual testimonials is that everyone looks back over their lives and talks about what their lives have taught them. I have never seen even one where the person regretted not working more, but many expressed their advice for young people as some version of "taking time to stop and smell the roses." For me, the take-home point of this is that having and maintaining a healthy work-life balance is what all these people have learned from their long lives.

Although this seems self-evident today, the importance of a healthy work-life balance is a relatively recent concept. Like many other medical writers, my education led me to a biology (molecular genetics) laboratory doing research for my PhD. These were the "Brave New World" days of molecular biology as gene cloning had only just become a common household word. It was common in academic laboratories in those days (sadly, many students tell me that it still is) for the laboratory leader to stress that a career in science required a complete focus on work and a near total neglect of life. Mine was infamous for expressions like "students should always

be familiar with the current literature but never be seen to be reading (only doing experiments)" or "What do you think this is, a country club?" Many of the students in my lab were prone to sneak out of the laboratory leaving their coats on the coat rack so that our laboratory leader would think that they were still working. It was, in fact, the pressure to completely skew the work-life balance towards work that eventually led me to quit research and become a medical writer.

Strangely, despite the introduction of a wide range of labor-saving devices, a number of studies indicate that the average worker has less free time and more stress, and thus a less healthy work-life balance than workers 100 years ago. Yes, the internet brings the world of knowledge and information to our fingertips, yet it also means that clients or managing supervisors can contact us at any time including supposedly "down times" like weekends. This is particularly true for medical writing where "challenging" timelines are used to insist that a medical writer be available for much longer than the traditional 40 hours a week.

Medical writing, by its very nature, poses both great challenges and great opportunities for work-life balance. Every medical writer I have ever met has noted the "feast or famine" nature of medical writing, i.e., that one has periods of intense overwork as well as periods of calm and underwork. Medical writing is clearly not an assembly line, factory job where every day is the same. While this "peaks & troughs" aspect is what appeals to some people, there is no doubt that others find it difficult to deal with and it can determine whether a person continues as a medical writer or leaves to do something else. Crucial to being a successful medical writer, I believe, is the ability to achieve a practical work-life balance in a profession with such intrinsic variability. On the other hand, this aspect of medical writing also delivers regular "down time," which can be critical for getting away from it all and ensuring a healthy work-life balance. It is the very unpredictability that must be anticipated and planned for so that no matter how much the balance is upset during the peaks, it can be restored during the troughs.

An important aspect of this peak and trough nature of medical writing is learning to keep the peaks from spinning out of control. Medical writing projects in the regulatory environment involve long chains of activities and delays in any of them can cause an accumulation of delays at the end—at the point of finalizing the document. Clinical research is an exploratory science and unanticipated problems and issues often occur causing delays and requiring changes in plan. All of this can cause large amounts of stress for a clinical team and many react by "suggesting" that the medical writer try to perform miracles and complete writing assignments in impossibly short timeframes. Part of being a good medical writer with a healthy work-life balance is to correctly train your teams. While top writers will often work to very tight deadlines and may spend considerable time and effort outside of the traditional worktime, sanity dictates that some requests will need to be declined and it must be explained to the team that some things are simply not possible, with reasons for why and with explanations of what is possible. I was once asked by a client to write a Clinical Overview and have it reviewed and finalized by the clinical team in 2 weeks. I had to inform them that this would not be physically possible.

Achieving a healthy work-life balance requires an active decision to do so and constant vigilance.

In addition, the very qualities that contribute to making a good medical writer, attention to detail and conscientiousness, are the same ones that can also contribute to a pathological sense of perfection and a loss of work-life balance. A recent article in the *New Scientist*[3] describes how psychologists are increasingly seeing perfectionism as a mental health disorder that can lead to depression, anxiety obsessive-compulsive disorder, and in extreme cases, to suicide. In medical writing, the final product, a clinical document, can always be worked over and improved and so a sense of perfectionism can easily lead people to obsess over a document: checking it again and again, taking huge amounts of time, ruining the project budget, and destroying any sense of work-life balance. I consider one of the best predictors of the future success of young writers is their ability to accept and let go of a document within a reasonable time. Learning to delegate and striving to make documents "fit-for-purpose" (which is a positive attribute) rather than perfect is an important part of being a medical writer.

So, how does one go about achieving a healthy work-life balance? Like many problems, the first and most difficult step is to acknowledge that there may be a problem. Achieving a healthy work-life balance requires an active decision to do so and constant vigilance. A successful work-life balance will require balance, and not an emphasis on only one or the other. Western culture tends to value work above any other activity (despite the US Declaration of Independence stating that the pursuit of happiness is an inalienable right given to all people by their creator) and rarely do medical writers need to make an active decision to work more. It is the life part that is harder to give enough attention to for balance. So we need to make an

active decision to make time and effort for our life side, otherwise known as the "pursuit of happiness." This can be difficult because people find that doing things to restore the work-life balance can, due to many years of indoctrination, feel like they are doing nothing. And this makes many people feel deeply uncomfortable.

Based on my life experience, I would say that to find balance one needs to find an activity that brings joy, and the most lasting kind of joy is coupled with a sense of achievement. Many people first discover a work-life balance with the arrival of children, and this is certainly something that can bring joy as well as achievement to your life. But as anyone with children can attest, parenthood can also feel like a chore sometimes as there are many things one "has" to do as a parent. So, I think that it is also important to find a sport, hobby, or activity that can also bring joy and achievement to truly achieve a healthy work-life balance. It is important to remember, however, that the goal here is balance and peace of mind. Whether it is canyoneering, travel, model trains, hill walking, or postage stamp collecting (all of which I have known medical writers to do), find something that brings you joy, relaxes and distracts you from your problems, and most importantly, gets your mind off of your work and restores work-life balance for a longer and happier, and probably even more productive, life.

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References

1. Carmichael SG. The research is clear: long hours backfire for people and for companies. *Harvard Business Review.* August 19, 2015. https://hbr.org/2015/08/the-research-is-clear-long-hours-backfire-for-people-and-for-companies
2. Steiner S. Top five regrets of the dying. *The Guardian.* February 1, 2012. https://www.theguardian.com/lifeandstyle/2012/feb/01/top-five-regrets-of-the-dying
3. Thomson H. Our obsession with perfection is damaging individuals and society. *New Scientist.* August 14, 2019. https://www.newscientist.com/article/mg24332433-200-our-obsession-with-perfection-is-damaging-individuals-and-society/#ixzz62KWEQ9QA

16 Tips for Nurturing Clients Into Long-Term Relationships

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Long-term clients form the foundation for many successful businesses, including freelance writers, freelance editors, and multi-writer/editor medical communication companies (Medcoms). For brevity, this article refers to them collectively as "providers," and we have indicated when points appear more applicable to freelancers or to Medcoms. Because the definition of long-term clients can vary, here, "long-term clients" indicate clients who have received 2 completed projects and have at least engaged the provider for a third project. As a brief review, marketing to potential new clients may lead to new projects in about 5% to 20% of cases, depending on the customization of the marketing letter.[1] In comparison, landing new projects from satisfied clients has a much higher probability (Figure 1).[1]

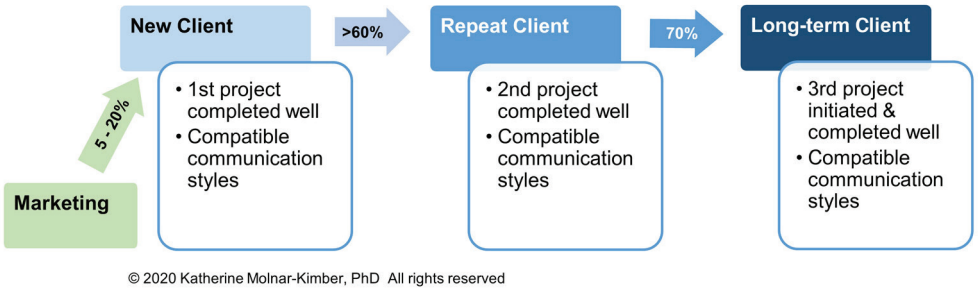

Figure 1. Long-term clients have awarded at least 3 projects to the freelancer or Medcom.

Advantages and Benefits

Long-term clients can increase the peace of mind of providers and reduce the time to produce quality documents. Their multiple advantages include the reduction in business hours needed to set up for the nth project. The 2 businesses (client and provider) may have already executed a Confidentiality Agreement (Nondisclosure Agreement) and a Contractor Agreement, which stipulate the overall responsibilities. The Contractor Agreement usually specifies the general working practices, invoicing procedure, and payment terms. Thus, the subsequent administrative paperwork focuses on detailing the specifications of the next writing project (the Statement of Work). The provider has become familiar with the client's preferred communication methods and frequency, online storage systems, desired format (eg, American Medical Association Manual of Style), and writing style. The client has already provided numerous background documents, templates, and references, so obtaining additional background documents requires less time. Because the provider has minimal unknowns, the provider often experiences less stress and more joy working with this client, which makes writing and/or editing easier.

Working with long-term clients provides many additional benefits. For example, the provider likely will have accumulated a larger resource file and knowledge base on the disease states, medications, or devices of long-term clients. The provider is more familiar with the client's key references, subject matter experts, external thought leaders, and unaffiliated prominent scientists and clinicians in the specific area. Often, the provider not only is able to comprehend and recall the evidence in the background information but also may be able to compare and contrast the current project with different published studies. Thus, the provider is able to spend more time dedicated to the actual writing of the document. Long-term clients and providers enjoy greater peace of mind and financial stability.

Because conditions may change at a client's business at a moment's notice, freelancers are wise to cultivate and maintain at least 4 to 6 long-term clients or more for added peace of mind. Medcoms may be able to service many more long-term clients. Keeping your current clients satisfied is usually much easier than searching for, being interviewed by, and landing a new client. Many articles and books provide strategies for satisfying clients.[2] Here, we provide 16 tips that can help keep your clients satisfied.

Deliver on Target and on Time

Tip #1. Identify Specific Goals So You Can Meet or Preferably Exceed Them

Open and direct communication with clients seems an obvious trait that supports the development of long-term relationships. Providers need to ask clients for clear, defined project goals and the ultimate purpose of the document. Using a checklist for discussions during negotiation and initiation can help address major points and save time. A written project brief, approved by both provider and client, can supply both parties with agreed-upon goals and objectives. Organizing and hosting a project kickoff teleconference is a useful tool for demonstrating control: all parties can agree to timelines and align outcomes at the start of a writing project.

Tip #2. Design the Contract to Ensure Sufficient Time to Perform Tasks After Receiving Resources

Providers need to clearly confirm a project's timeline and benchmarks with their client. Many experienced providers confirm with the client that the timeline begins after receipt of the agreed background material. During contract discussions, agreed timelines can be defined not only by date(s) but also by time period (eg, x weeks) after receipt of resources. Regardless of the deliverable, both provider and client benefit with a set of reasonable benchmarks. Trying to impress a new client with unrealistic turnaround times is a surefire way to deliver writing of subpar quality. Instead, always build in time to polish the document before submitting to a client. First impressions in our business are extremely important.

Tip #3. Begin Immediately to See if Provided Resources Have the Info Needed to Meet the Target

Organizing your project folder and materials early is essential for project management success and delivering high-quality work products. Upfront review and cataloging of client-supplied resources is a best practice. This organizing does not need to be complicated or an elaborate system, and it will help at each stage of writing, editing, review, and revision.

A good example of tracking and cataloging background materials is making sure that the core references that clients have mentioned in project communication are delivered as agreed. Many of us have experienced the prospect of missing agreed deadlines because of a delay in receiving an essential reference or document. Ongoing communication with a client to manage these types of situations and manage expectations is essential.

Tip #4. Make the Outline Soon to Find Any Holes

Developing an outline for your writing project or an editor's style guide provides a number of safeguards. Whether you decide to draft a bullet-point or full-sentence outline, this initial document becomes your deliverable template. Sharing a clean and edited outline with your client may be particularly useful, even if that step is not stipulated contractually. Early alignment with client expectations and understandings via a clear and concise outline will generally lead to a successful deliverable and a client who sees your organizational skills and project management prowess as a step ahead of your peers.

Tip #5. Cite Sources While Writing the Document

To avoid searching for the source of specific facts later, cite each source of each specific fact while writing the initial first draft. Save time by obtaining clear directions on the type and style of citation/annotation needed for the client's internal review standard operating procedure at the onset of the project. Confirm the annotation and citation styles with each client, as they may vary between different departments within the same organization. Ongoing communication with a new client takes time, but early and agreed-upon understanding of citation standards will build trust and mutual understanding, and in the long run, it will save you time.

Tip #6. Polish the Document Before Submitting

Each document provided to your client directly reflects your professionalism and skill. Take time to review and edit every deliverable: perform a clean read, spellcheck, and formatting review. Budgeting a few hours for a professional editor and/or professional document designer/graphics designer or running a proofreading program can help deliver a flawless document. We operate in a competitive environment, and demonstrating your professional zeal by taking pride in each document is one of the best ways to build long-term relationships with multiple clients.

Foster Collaborative Interactions With Clients

Tip #7: Be Proactive

Every assignment has challenges and opportunities. Providers who are partners in their client's success anticipate, and thus avoid, many of the potential challenges. They are vigilant in looking for opportunities that may benefit the project and the

client. When a challenge arises, they present one or more solutions. Clients want to work with providers who have a can-do attitude while still maintaining boundaries. If a client's request isn't possible for you to accomplish within budget or deadline, propose what you can do instead of simply saying "no."

Tip #8: Be a Good Communicator

Providers who are partners know that their communication style impacts their relationship with clients, for better or worse. When a client reaches out to you, it means they need you—now. Be responsive, even if just to say that you received their message and will respond more thoughtfully in an hour, later in the day, or ASAP. When communicating with clients, be confident instead of unsure and always positive, appreciative, and personable. In group settings, such as teleconferences and meetings, prepare for the meeting and focus on how you can contribute to the team.

Stay on Budget

Tip #9: Be Fair to the Client and to Yourself

Long-term relationships between providers and clients are built on a foundation of mutual benefit. Project pricing assures the client of receiving the deliverable for the agreed-upon price and assures the provider of being paid for their value instead of for their time. Project pricing is based on the parameters of the deliverable. When a deliverable is ill-defined, providers can still give a project estimate by setting their own parameters and noting to the client that the estimate will be revisited and adjusted as necessary once the actual project parameters are known. Any major scope changes would also require a discussion and likely a revised estimate. If you prefer to work by an hourly rate, make sure your rate is at least commensurate with industry standards.

Tip #10: Don't Be Afraid to Give Yourself Away

Assignments often evolve, but not every step in the evolutionary process constitutes a scope change. Clients may not consider you their partner when they're worried that every unanticipated question or minor request carries a price tag. Nurture your clients into long-term relationships (and retain them) by occasionally "writing off" a minor additional ask to your "marketing budget." Occasionally helping a client without an added fee builds goodwill that can be much more valuable than its cost to you.

Grow Yourself

Tip #11: Ask for Feedback

When it comes to business relationships, no news usually isn't good news. Happy clients typically let you know they're happy, but unhappy clients typically don't tell you anything. If you want to nurture your clients into long-term relationships, ask them for feedback, which shows your interest in continually improving your services.

Respect the Clock

Tip #12: Schedule Email and Break Time

If you need more uninterrupted time to do your best work, don't just disappear into the ether. Schedule specific times during the day to check email, and only open it during those times. The important thing is to let your clients know so they don't think you've dropped off the face of the Earth. You can also schedule short mental health breaks during the workday to rejuvenate your brain power.

How Freelancers/Medcoms Can Avoid Turning Clients Off

Sometimes the easiest way to nurture new clients into long-term clients is to avoid the common mistakes made by less-experienced providers. Common mistakes include burdening clients with inadequate communication, unwelcome surprises, unaddressed issues, or inappropriate invoicing.

To avoid these pitfalls in provider-client relationships, consider the following tips:

Tip #13: Avoid Inadequate Communication and Follow-up

Consider the value of positive communication skills and soft skills: be personable, friendly, and courteous when interacting with clients. Focus your attention on the client and avoid multitasking. Provide your daily schedule for reading and responding to nonurgent emails and update clients about any out-of-office (or unavailable) days. Consider providing a means (eg, texting) for reaching you in case of "emergency," and when received, respond promptly to tell the client when you can send the information. Find out the client's schedule for their in-house progress reports and send your updates in plenty of time.

Consider using the most appropriate type of communication for the preferred action.[1] Emails provide information and time for a thoughtful response from clients. Conference calls or online meetings enhance group discussion and the sharing of visuals. Adequately preparing for conference calls and meetings helps you keep your comments on topic so they meaningfully add to the discussions.

Tip #14: Avoid Surprises

Avoiding surprises is critical. It is always best to complete projects on time and to stay within budget. But if an extension is needed or the terms of the project need to be revisited, do not wait until the expected delivery date to ask for these changes. It's important to regularly identify, assess, and discuss any

potential changes to the project, its timeline, and its associated costs with clients as early in the process as possible.[3]

An important strategy for avoiding surprises with clients is to set appropriate expectations before projects are initiated. Be honest about your experience and need for direction. Freelancers who mislead clients or who require too much hand-holding may not be considered for repeat business.

During a recent International Society for Medical Publication Professionals (ISMPP) roundtable, several pharmaceutical clients relayed their frustration with hiring Medcoms that pitched to clients with one team but then switched their team after being awarded the contract. The client team sought not only competence but also compatible personalities in their search for a Medcom partner. Thus, Medcoms should consider the importance of presenting the actual team to the client during the interview/negotiation process.

Tip #15: If Client Appears Disgruntled, Don't Let It Fester

If a client shows a change in communication frequency and/or tone, gently ask the client for feedback on the project to determine whether external forces are causing the stress or whether some aspect of your work is contributing to the stress. If the client has an issue with your work, listen intently as client describes the problem. Try to accept client's perspective and avoid becoming defensive or blaming anyone at the client's office.[4] Focus on possible solutions to the issue, and together with the client as a partner, work to solve the challenge in an amicable way.[4]

Tip #16: Don't Delay or Inflate Invoices

Clients have monthly or quarterly budgets, and delayed invoices can inadvertently skew monthly budgets to client's management and may impact the department's subsequent budgets. Thus, it's important to invoice promptly. Some clients may find it difficult to pay very late invoices.

Clients also may become irritated if they receive an invoice for a fee higher than the agreed-upon budget. They may have to obtain approval for the increased amount. Thus, ensure that clients sign off on changes to budgets before any additional work is completed.

Summary

Clients hire your services to produce documents within their deadlines and save them time and aggravation. Providing an on-target document is key, as receiving a document that does not fulfill its purpose means at least a substantial revision or worse. Clients also prefer to work with providers who have predictable, pleasant, and professional attitudes and modes of communication. Thus, providers who deliver on-target documents to new clients within their deadlines and budgets and who use efficient and pleasant communication styles can often turn these new clients into long-term productive relationships.

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References

1. Mansfield M. Customer retention statistics – The ultimate collection for small business. Small Business Trends website. Published 2016. Updated April 21, 2020. Accessed October 25, 2020. https://smallbiztrends.com/2016/10/customerretention-statistics.html
2. Bly RW. *The 29 Secrets of Achieving Outrageous Levels of Customer Satisfaction.* Montville, NJ: Center for Technical Communication; 2014. http://www.29stepstosuccess.com/
3. Younger J. Freelancers, eight actions guaranteed to improve your client relationships. Forbes website. Published September 27, 2019. Accessed August 11, 2020. https://www.forbes.com/sites/jonyounger/2019/09/27/young-freelancers-eight-rules-of-good-client-relationships/#116cfc2975bf
4. Bly R. Chapter 10. How to prevent a dissatisfied client from leaving you. In: *Keeping Clients Satisfied: Make Your Business More Successful and Profitable.* Prentice Hall Direct, 1st Edition. Upper Saddle River, NJ; 1993.

Additional Resources

Check. Correct. Improve. Be Your Own Best Editor. AMWA Online Learning. https://www.amwa.org/page/best_editor

Essential project management techniques for medical communicators. AMWA website. Published March 2, 2020. http://blog.amwa.org/essential-project-management-techniques-for-medical-communicators

Gastel B. Editing and proofreading your own work. *AMWA J.* 2015;30(4):147-151. https://cdn.ymaws.com/www.amwa.org/resource/resmgr/resource_library/med_editing/editing_your_own_work.pdf

The Secret Marketing Tactics of Top Freelances. AMWA Online Learning. https://www.amwa.org/news/416753/Free-On-Demand-Webinar-for-September.htm

http://amwa.mycrowdwisdom.com/diweb/catalog/item/id/726399

Unlock the Secrets to Freelance Success. AMWA Online Learning. https://www.amwa.org/page/freelance_success

FREELANCE FOCUS


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Phyllis Minick

For this issue of the *Freelance Focus*, our contributors were asked to comment on "16 Tips for Nurturing Clients Into Long-Term Relationships" by Katherine Molnar-Kimber, PhD, Thomas Drake, MA, CMPP, Brian Bass, MWC, and Nicole Cooper, published in the *Practical Matters* section of this issue. Contributors were asked to comment on the article by identifying their favorite tips and/or suggesting new ones.

This is a comprehensive article with many great tips on how to nurture your clients so that they become long-term clients. I've worked with long-term clients since the early days of my freelance business. Always doing more than expected is the main way that I developed the strong relationships that led to new clients becoming long-term clients.

There are many ways to do more than expected, including, as the article says, by "giving yourself away" occasionally. Clients are very annoyed when you ask for more money for every minor change to a project. And even if a change is big enough to ask for a scope change (but not huge), consider the overall value of that client to your business before asking for more money.

One of my clients set generous fees for freelance projects. Sometimes the projects were more work than they expected and sometimes they were less work. When a project became more work than expected, I never went back and asked for more money. My client really appreciated this and told me that she was very annoyed by the freelancers who asked for more money every time something changed in a project. Although I made less money per hour on some projects than others (using an hourly rate as a metric), over time, the fees averaged out to a generous hourly rate.

An easy way to nurture clients into long-term relationships is to be a responsive and good communicator, as covered in the article. Clients expect us to respond promptly. It's frustrating for them when we "disappear into the ether," as Tip #12 says, and they don't know what's happening with their project. Even when I'm on deadline, I check my emails at least every few hours.

Good communication includes letting the client know about problems that could impact your ability to deliver the project on time. In my business, for example, I do a lot of interviews. So, I always tell clients that my ability to meet their deadline is contingent on the sources being available for interviews. And I let the client know promptly when I'm having trouble scheduling an interview or if an interview source has cancelled.

—Lori De Milto

The comment that I found especially valuable was scheduling email response time(s)—Tip #12. I'm inclined to check emails late in the day after other chores. Informing clients of specific time slots when you, the provider, are likely to see their email input establishes routine interaction. Excellent suggestion.

Several points I'd like to add or amend are the following:

1. Initial contracts with new clients, especially pharma clients, should include the provider's "hold harmless" statement, preferably supplied by a lawyer. Writers have been sued during lawsuits directed at pharma product failures. (I think that advice originally came from Cathryn D. Evans.)
2. Keeping a long-term client "happy" can benefit you, a freelancer, because that one client often refers you to others in the same company and/or elsewhere.
3. Keep records—clients often return to a helpful provider to repurpose the info from one project into another one in a different format.
4. BE PROUD! Remind yourself of your professional successes. My experience with medical writers/editors convinces me of their remarkable skill, wisdom, and power to add valuable knowledge of their subjects to clients' projects!

My compliments to the authors for sharing their wisdom.

—Phyllis Minick

Working together with a client as a partner is my ideal working relationship. Among all the valuable tips presented in the article, I have a few favorites to nurture that partnership:

Tip #1: Identify Specific Goals

Regardless of how my client and I are communicating, I email the final list of tasks we've agreed to for a project so there is a paper trail of our decisions. I include answers to any queries I've had, so we both remember how we decided to handle that aspect of the project.

I copy that task list into my time sheet as a reminder of what I need to do. I also include that list in my invoice so the client has details beyond a project name and number of hours. A reminder of what the project entailed can be especially relevant if questions arise later.

Part of Tip #5: Cite Sources While Writing the Document

Submitting the project with the preferred annotation and citation style shows I understand the project requirements and that I care about making the job of my client easier.

Tip #7: Be Proactive

I send prompt replies confirming receipt of material, and I also send a status report either the day before the project is due or at reasonable intervals, depending on the size of the project. I want the client to feel confident that their project is in good hands and that I am making progress to meet or exceed the deadline.

Tip #13: Consider the Value of Positive Communication Skills and Soft Skills: Be Personable, Friendly, and Courteous When Interacting With Clients

Clients want to communicate with pleasant professionals. Being a proactive positive communicator goes a long way toward cementing a long-term working relationship.

New Tip: Submit a Style Sheet

As an editor, I not only use client style sheets, but I add to them, or I create a style sheet if one doesn't exist. By recording my editorial decisions, I ensure consistency for every project on which I work. I submit the style sheet for client feedback, and that collaboration pays off for both of us: their style sheet becomes more useful to writers and other editors, and they regard me as a valuable team member.

—Melissa L. Bogen

CALENDAR OF MEETINGS

Please confirm with individual meeting hosts

2021 AMWA **Medical Writing & Communication Conference**

OCTOBER 27-30, 2021

Trends and Opportunities for Medical Communicators

www.amwa.org/conference

Alliance for Continuing Education in the Health Professions Annual Conference
January 12–15, 2021
Virtual
http://www.acehp.org/p/cm/ld/fid=571

European Meeting of ISMPP
January 26–27, 2021
Virtual
https://www.ismpp.org/european-meeting

AAAS Annual Meeting
February 8–11, 2021
Virtual
http://meetings.aaas.org

APhA Annual Meeting & Exposition
March 12–15, 2021
Virtual
https://aphameeting.pharmacist.com

DIA Europe 2021
March 15–19, 2021
Virtual
https://www.diaglobal.org/en/flagship/dia-europe-2021

Annual Meeting of ISMPP
April 19–21, 2021
Washington, DC
https://www.ismpp.org/annual-meeting

ACES Annual National Conference
April 22–24, 2021
Atlanta, GA
https://aceseditors.org/conference/

EMWA Conference
May 4–8, 2021
Riga, Latvia
https://www.emwa.org/conferences/future-conferences

STC Technical Communication Summit
June 6–9, 2021
Atlanta, GA & Virtual
https://summit.stc.org

Health Journalism 2021
June 24–27, 2021
Austin, TX
https://healthjournalism.org/calendar-details.php?id=2245

DIA 2021 Global Annual Meeting
June 27–July 1, 2021
Virtual
https://www.diaglobal.org/Flagship/DIA-2021

The COVID-19 Pandemic Has Led Our South Florida Networking Group to an Important Discovery: The True Value of Networking

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As a group of AMWA members who gather monthly for a locally organized networking event, we understand the importance of connecting. However, the coronavirus disease 2019 (COVID-19) pandemic has proven to us the time and energy we invest in networking does reward us, and often in unexpected ways. This is the story of how we successfully transitioned our networking to a virtual format while maintaining our group integrity.

We named our gatherings "First Thursday" because we meet the first Thursday of each month. Our group was organized as an informal venue, allowing AMWA members living in Southeastern Florida a means to connect regularly. Typically, we meet in a restaurant and discuss a variety of topics. At more than a few of these events, projects have found partners and gaps have been filled. Since our group formed in 2016, friendships have flourished as we bounced ideas, shared knowledge, and helped each other tease out solutions to issues by supplying additional perspectives and experiences. We presented a poster (Figure 1) at the 2017 AMWA Conference detailing our group's initial success.

Figure 1. In 2017, our First Thursday networking group presented a poster at the AMWA Annual Conference in Orlando, FL, explaining our mission and sharing our experience in forming a successful networking group. (Click on image to enlarge.)

The Pandemic Took Us by Surprise, but Our Desire to Continue Meeting Did Not

As the COVID-19 pandemic closed in around us in March, we realized our in-person monthly meetings would be forced to end, but we wanted to find a way to preserve our valued connections with each other. Before we canceled our April meeting, we began a new mission: planning to move our in-person gathering into the virtual world.

Canceling our April meeting (Figure 2 on next page) provided us an opportunity to prepare for a virtual meeting in May. We were uncertain if we could pull off this new format. But, to our surprise, when we announced our first virtual meeting, we received more RSVPs than we had for any of our in-person events earlier in the year. That was motivation enough to move forward.

We planned nothing elaborate for that first virtual event. Instead, we used it as an opportunity for everyone to check in and check on each other. From the moment we appeared together on the screen, we fell into our comfortable rhythm of sharing generously with each other. Before the end of that May gathering, we all agreed we missed our monthly networking sessions too much to let the pandemic halt them. It was decided that First Thursday was officially switching to a virtual monthly event—at least for the duration of the pandemic.

Although we did not realize it at that moment, this was proof that our years of investing our time in networking with each other were beginning to pay back for us in an unexpected way. We were not just preserving our network during the pandemic. This network we have woven together was helping us focus and move forward during this pandemic, even as many people around us were struggling to cope. Just the act of trying to organize our meeting and help each other was helping us individually to become more active and productive.

During that first virtual meeting, we shared activities we incorporated into our routines for working or even just managing life during the pandemic. New projects were dis-

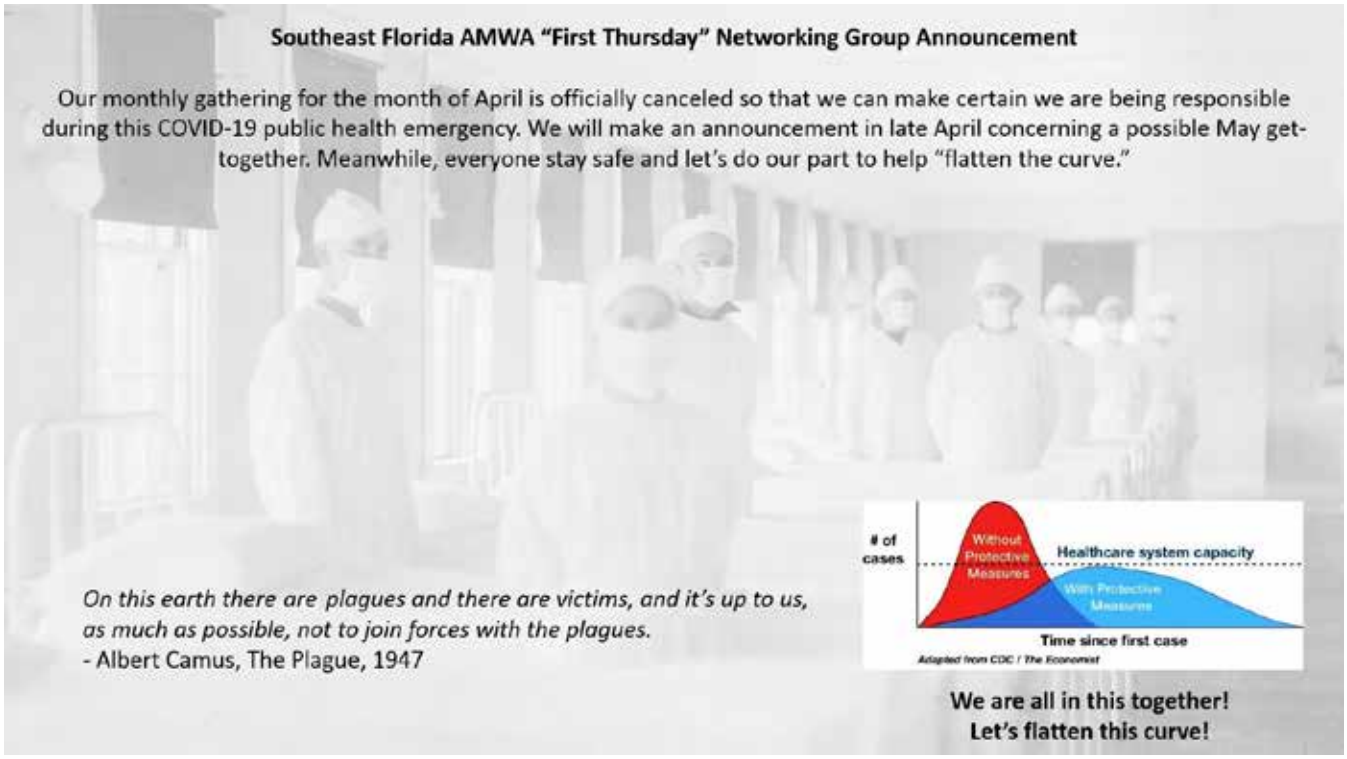

Figure 2. The April 2020 cancellation of our First Thursday event marked the first time our group failed to meet since its first gathering in December 2016.

cussed, and when the meeting concluded, a few of us had been recruited into other members' new projects. The momentum and enthusiasm for our group was helping us become more energized and productive, and this transferred into our work. Our group helped us to feel less isolated and, in turn, more motivated.

Our Mission: Keeping Us Together Virtually and Preserving Our Unique Atmosphere

We ended our May event committed to our mission of creating a sustained virtual presence, and with our June meeting, First Thursday gatherings were back on a regular monthly schedule. We had to make adjustments to our format, but we were not only back, we were back with new participants and visitors popping into our events to check out what we had started.

When First Thursday went virtual, we did lose some things that we were accustomed to and valued in our in-person gatherings. The biggest loss in the virtual setting was our ability to meet in person—an important part of any business or personal relationship. Meeting virtually also makes it harder for new attendees to get to know our regular attendees, but with conscientious hosting, we are finding ways to minimize these losses. To save time on introductions, our regular attendees are creating a directory that includes short personal bios so that new members can get to know us. The directory will also serve as a conversation starter for new members. Over the past 3 years, our group has visited about 15 different restaurants, and we have missed the opportunity to sample the varied cuisines available in South Florida. However, the one loss that we all agree was really a gain is the elimination of traffic jams and the time wasted driving around after being misdirected by our GPS.

Meeting virtually is different than meeting in person, but it has its own benefits. Without the need to make restaurant reservations, we have been able to save the time spent on logistical planning. By eliminating the long commutes, we have been able to move our meeting time later—a move that better accommodates many of our attendees. The virtual move has removed geography as a barrier and helped to broaden our reach to AMWA members outside of our usual geographic target area. On special occasions, members from other areas of Florida have joined us and made significant contributions to our networking group. We share a few tips for virtual hosting that we have found essential in Figure 3.

Perhaps the greatest benefit of meeting virtually is that we have been able to offer a wider variety of meeting activities and have more structured meetings centered on topics of interest raised by our group. In our typical restaurant settings, it was nearly impossible to have structured meetings because of a lack of audiovisual capabilities and trouble hearing each other over ambient noise as our group became larger. Since starting our virtual networking sessions, new activities have included an interactive discussion led by Barbara and Clyde Goodheart, longtime group members, who shared with us an e-book they are developing to help navigate the COVID-19 pandemic. They also led us in a discussion exploring self-publishing and an

Figure 3. Our tips for hosting a successful virtual meeting.

exercise to uncover what is keeping us from writing our own books. We also welcomed our first remote speaker, Dr Judy Stone (Figure 4), who shared her experiences while writing her recently published family memoir, *Resilience: One Family's Story of Hope and Triumph Over Evil*. Dr Stone also shared invaluable tips on how to stay focused and organized while juggling many projects—a topic relevant to all of us as medical writers.

Taking First Thursday virtual has allowed us to maintain a sense of normalcy in a season that is anything but normal. Our group can trust that we will keep our monthly schedule. Each month, we still meet for the opportunity to share ideas, help each other, and collaborate on new projects. And most importantly, our group is certain to have fun and share a few laughs.

Figure 4. Another advantage of geographic restraints being removed: at our September 2020 event, we were able to invite a guest speaker, Dr Judy Stone, an infectious disease physician and prolific science communicator from Cumberland, MD. She spoke about her newest book, a family memoir, and the tools she used to keep her book as well as her blogs organized. Not only did the virtual format allow us to bring in distanced speakers, but we were also able to invite interested AMWA members from other networking groups in Florida as well as other AMWA chapters around the country.

Lessons Learned From Our Virtual Transition

It took a pandemic nearly ending what we had been taking for granted for us to realize how important our networking group was to us. That was the impetus we needed to find a way to adjust and preserve our group. But now we also realize the importance of maintaining balance so that we do not stray far from our original mission and what we enjoy most about our group.

As we have taken advantage of the additional features that virtual meetings have permitted, we have been able to expand our audience throughout and even beyond Florida. But we are striving to make certain we retain our unique identity as a group that was formed to provide a collegial experience with our peers in which we can relax and have fun as we share and learn.

We are early into this transition, but we have already learned lessons that we are incorporating to keep us focused that we can share with others who are embarking on similar journeys.

Selecting Your Platform

There are many virtual conferencing/meeting platforms available. We chose Zoom for its ease of use, features, no-cost option, and accessibility via multiple devices. Other commonly used platforms include Microsoft Teams, Google Meet, and GoToMeeting. Given the high usage rate of these platforms during the pandemic, each company is adding features on a regular basis, so a comprehensive review is likely to be out of date by the time of publication. Nevertheless, Table 1 captures the basic information for each platform as a starting point for individuals who wish to explore which options will work best for their setting.

Preparing for Your Event

Once your platform is selected, ensure that anyone hosting, cohosting, or presenting is familiar with the features of your platform. We have found that practice runs can be helpful to familiarize key participants with the features. It is very useful to have a cohost, even for small meetings, and it is a necessity for larger meetings. The cohost can assist individuals who are having trouble logging in, run the meeting and share presentations as a backup plan, run polling, or monitor the chat for

Table 1. Commonly Used Virtual Meeting Platforms

Platform	Free Options?	Maximum No. of Participants	App Required?	Link to Product Information
Zoom	Yes, 40-minute time limit	100	No, but one is available	http://zoom.us/
Microsoft Teams	Yes, but there is a limit of 24 free hours	500	Yes	https://www.microsoft.com/en-us/microsoft-365/microsoft-teams/free
Google Meet	Currently included in Google Workplace at no charge	100	No, but one is available	https://apps.google.com/meet/
GoToMeeting	No, $12/month	150	Web and desktop app	https://www.gotomeeting.com/

questions. We suggest having the host and cohost in contact via phone texting.

Just as with an in-person event, it is important to promote your event appropriately. We send email reminders 1 week in advance, 4 days before, and the day before. For open events, you may wish to use AMWA Engage or social media platforms.

During the Event

During our networking events, we try very hard to keep an interactive component. The host is responsible for welcoming attendees and engaging them throughout the meeting. Networking requires communication! The host also guides the conversation, if necessary, to stay on topic.

Where Does First Thursday Go From Here?

Just as we did in 2017, we presented a poster at the 2020 AMWA Medical Writing & Communication Conference to illustrate our successful transition to a virtual platform (Figure 5).

Figure 5. At AMWA's virtual October 2020 Medical Writing & Communication Conference, we presented our poster on how we took our First Thursday networking event from real world to virtual world. (Click to enlarge and explore the interactive poster.)

Our desire to build our networks is what drew us together. Before the pandemic, our network connections helped us explore new opportunities and connect with people and resources that helped us fill gaps. But during the pandemic, our network not only has allowed us to continue all of the benefits we previously found but also helped us navigate through this pandemic by providing us a much-needed connection that we enjoyed during more normal times. This has provided us a valuable sense of comfort that has helped us continue to better focus. Perhaps even more importantly, it has enabled us to help others who have also found their lives and work disrupted during this pandemic.

Since its inception, First Thursday has continued to evolve. Our transition to virtual gatherings has provided an essential means of retaining our vital connections and maintaining them in a fun and casual but consistent way. Moving online has increased our flexibility and brought advantages that we want to keep, but we also look forward to the day we can once again gather in person.

Once the pandemic is over, we hope to provide a blend of both in-person and virtual gatherings so that we do not lose the advantages we have gained in this transition. More importantly, we are a networking group, and we want our new participants to stay and continue with our group. Technology continues to change, and we enjoy embracing it, so perhaps in the future we can investigate virtual audience attendance at our in-person gatherings. We may be small in number, but we are well connected, and as a group, we have shown we are flexible, and we have already proven we are resilient. Our evolution as a group will no doubt continue.

Author declaration and disclosures: *The authors note no commercial associations that may pose a conflict of interest in relation to this article.*

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ZoomZoom! How to Get Your Chapter Programs Back on the Road

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Many things have shifted in our daily lives since the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic took hold in early spring of 2020. But as professionals—especially in medical communication—it is essential to keep learning and adapting. So how can chapters begin to use virtual platforms to host events for their members and draw the interest of American Medical Writers Association (AMWA) members across the country?

Each chapter can successfully pivot their events to the virtual space, regardless of their experience with virtual meeting and webinar platforms, but each journey will be different. For example, the Southwest Chapter, which was hosting webinars for members via Zoom prior to the pandemic, has continued and expanded the types of virtual events hosted by the chapter (chapter conference, roundtables, and networking events). The Greater Chicago Area Chapter (GCAC) started using a virtual event platform in April of 2020 to offer webinars and networking and intends to grow its virtual programming moving forward.

Here, we provide lessons learned about hosting virtual events via Zoom and address concerns that other chapters may have in approaching this new platform for connecting our medical communication community.

Hosting a Virtual Event

The first step is to select a platform that aligns with your chapter's needs and budget. Currently, several popular options dominate the virtual meeting market: Skype, GoToMeeting, Microsoft Teams, Google Meet, and Zoom. (Our chapters selected Zoom because its functionality, security, and price fit our chapters' needs, so it is the platform we discuss in depth in this article.) It is important to clarify that, although each of these platforms allows users to meet, not all have a webinar function available, and the webinar function may entail an add-on service at an additional cost. To offer webinars via Zoom, for example, your chapter will need the meeting subscription plus the webinar add-on.

Broadly speaking, meetings have 2 sets of roles: hosts and attendees. Hosts control many functions, but meeting attendees are otherwise fully participatory and can be seen and heard. Webinars typically afford considerably less parity in these roles, as attendees are, by default, neither seen nor heard in webinars. Webinars focus on the presenter(s), and attendees' participation is limited to chat, asking questions in question-and-answer sessions, and raising their hand (Table).[1]

Table. Different Levels of Service at Different Price Points

Zoom Features	Meeting Subscription	Webinar Add-on
Mute All Attendees	Yes	Automatic
Turn Off Attendees' Video	Yes	Automatic
Chat (Group & 1:1)	Yes	Yes
Breakout Rooms	Yes	No
Q&A	No	Yes
Polling	Yes	Yes
Screen-Sharing Lock	Yes	Automatic
Registration	Yes	Yes
Good for These Event Types	Networking events Board meetings Roundtable events Workshops Chapter conferences	Webinars Lectures Chapter conferences

Q&A, question-and-answer session.

Virtual Meeting Platforms Offer Different Levels of Service

Virtual meeting platforms differ from each other, and each offers a variety of subscriptions from which to choose. Understand the differences and start with a subscription level that fits your virtual-event needs. For example, Zoom (detailed in Table) currently offers the webinar function as a paid add-on available to clients with paid meeting plans, so offering webinars requires the purchase of both a meeting and a webinar plan.

Although many virtual meeting platforms offer free plans, some of these plans are limited. For example, Zoom's free plan limits meetings to 40 minutes, and it does not offer the webinar add-on option. However, these free trials can provide you with a good feel for the environment, and they often have support media (eg, webinars, how-to videos) that provide you with a good idea of the functions of their paid plans. Also, when attending webinars and meetings hosted by others, note your likes and dislikes about each platform as an attendee. Additionally, note how the event host interacts with the platform—are they having difficulties with the platform, or is the platform nearly transparent, allowing the focus to remain on the event's purpose and content?

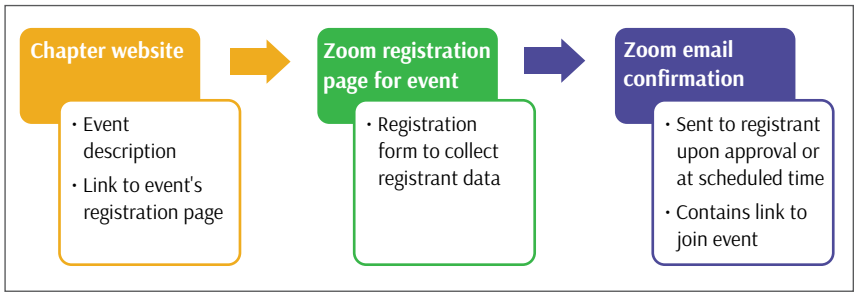

Figure 1. How to safely register attendees for a simple, free event. Use Zoom security defaults and require registration for your event to keep it secure.

Is the Cost of the Platform Worth It?

In our experience, using the virtual space has been the only way for our chapters to host events in 2020, and Zoom will be a common medium the chapters use going forward to connect members who could not otherwise travel to in-person events. Virtual platforms eliminate physical distance boundaries, which is a noted benefit for both GCAC and the Southwest Chapter (ie, Chicagoland's traffic and the Southwest's large geographic area can pose considerable barriers to many members' participation in in-person events). Additionally, in light of the typical costs associated with hosting an in-person event in Chicago, the cost of Zoom is very minor—however, it is understandable that this may not be the case for every chapter. The Southwest Chapter combined the use of a chapter meeting account with the webinar add-on function of a board member's account—this allowed for some cost savings.

Event Types

There are several types of events that can be hosted through virtual platforms (Table). Each type requires different considerations when planning, preparing, and setting up registration. We suggest starting with the simplest event to host, a networking event for which there is no charge and there are between 10 and 20 attendees. This event type uses the basic meeting function, so the main preparation required—in addition to the basic organizational issues of identifying who will lead the discussion and who will manage technical issues—is setting up a registration link in Zoom and sharing the link securely with your target audience. Attendees then register in Zoom using that registration link, and Zoom automatically confirms the registration and sends the attendee a link to join the event (Figure 1).

Regardless of event size or type, balance security with efficiency when planning and promoting your event. By posting the registration link on your chapter's website (rather than on social media), you can discourage bad actors (also known as "trolls") while still offering convenient registration to your members. Configure Zoom to send confirmation emails with individualized links to join the meeting to your attendees automatically to minimize the amount of work for your chapter's program volunteers. You can also configure Zoom to automatically send (or resend) confirmations just prior to the event, for attendees' convenience. Zoom has made many of its security features defaults, but implementing small additional security measures, like requiring registrants' full names and additional information (eg, institutional affiliation), will discourage bad actors from attempting to access your event.

To plan a more interactive networking event, use Zoom's breakout room feature. Just like an in-person meeting, where everyone convenes in a large ballroom for large-group sessions (eg, keynote speeches) and then scatters into separate rooms for the smaller sessions that follow, Zoom's virtual breakout room function allows hosts to split an event's attendees into multiple separate virtual rooms, where facilitators can lead more in-depth discussions.

After networking events, free webinars are the logical next step for most chapters. The presentation preparation and configuration in Zoom are more complex, but the promotion and registration flow is the same as it is for networking events. We have provided a full Chapter Webinar Checklist, complete with tips and tricks, to guide the planning of your first chapter webinar as Supplemental Material (see page 200).

Once your chapter has mastered the networking events and webinars, the move up to larger, more complex program events, like paid webinars, chapter conferences, and roundtables, may be a natural next step. These events require more advanced planning, configuration, and ticketing, but the application of a few additional tools can put them within reach of even the leanest program committee.

Zap Away Barriers to Offering Technically Complicated Events

Some events that require a certain level of participation to be successful, like chapter conferences and roundtables, should be ticketed events. (We use EventBrite, but there are others.) Charging even a nominal fee will improve the attendance rate of the event and further discourage bad actors from attending and disrupting the event. In the Southwest Chapter, about 70% of registrants for our free webinars attend, but our attendance rate for events for which we charge a nominal fee ($10 or $20) is nearly 100%.

Roundtable events use the Zoom breakout room function to create the virtual "tables." This allows multiple discussions to occur simultaneously, similar to an in-person roundtable event. And, also similar to an in-person roundtable event, "seats" at each roundtable are limited to optimize interaction between participants. Events of this type fail without some means of distributing participants across the tables (eg, only 1 person sits at a table), so limited, first-come, first-served ticketing allows for appropriate distribution of attendees across roundtable sessions. This type of event is complicated because no one wants to deal with a bunch of individual email registrations and banking issues, so what are the alternatives? There are apps to handle ticketing (eg, EventBrite), payment processing (eg, PayPal), registration updates for stakeholders (eg, Google Sheets), and registration confirmations (eg, EventBrite, Zoom) that can all be connected to each other.

Zapier offers an easy, intuitive way of automating the workflow by establishing the integrations (zaps) that connect the various apps that sell tickets to the event, register attendees with your virtual platform, deposit registration fees into your chapter's account, provide stakeholders with a real-time list of registrants (which can also facilitate automating breakout room assignment), and send your attendees event information, receipts, confirmations, and log-in credentials (Figure 2). By integrating the apps that will work together to make your event a success, you can avoid the routine labor involved in managing and monitoring registrations.

Zapier has paid and free plans. Just as with the selection of a virtual meeting platform, pick the plan that fits your chapter's needs best. In the Southwest Chapter, the author donates webinar access and also integrates the apps for chapter events using her paid Zapier account, but the GCAC chapter has found success integrating the apps for their events with the free Zapier plan.

Event Preparation and Hosting

Virtual events require careful planning and attention to detail beforehand. Planning the event thoroughly and well provides the foundation for a feeling of confidence that will carry the host and volunteers through the event. After hosting a few basic, small meetings, inexperienced chapter programming planners may want to begin offering larger chapter-wide events. We suggest beginning your virtual event adventure with a low-key chapter webinar. The Chapter Webinar Checklist (Supplemental Material) includes all the steps for planning and hosting a webinar, and it can be adjusted to each chapter's needs and built upon to offer more complex events (eg, roundtables, chapter conferences).

All volunteers will need confidence and a working knowledge of the virtual meeting/webinar platform because things absolutely will go wrong, just as they do with in-person events. When the projector bulb burns out, the speaker is delayed in a traffic jam, or the microphone echoes at an in-person event, the problem is dealt with and forgotten nearly imme-

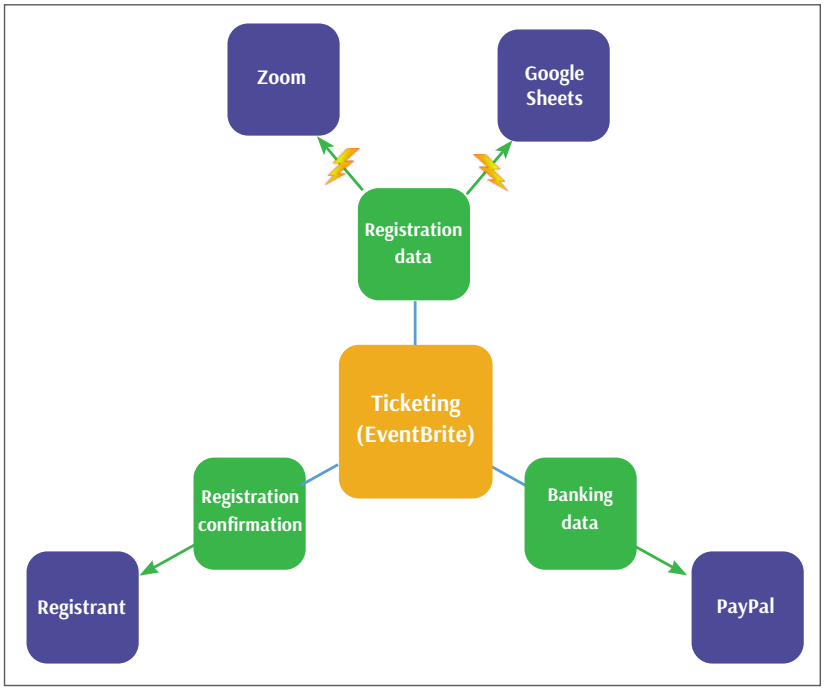

Figure 2. Make a technically complicated event effortless with integrations. Using Zapier, users can create integrations called zaps (indicated by lightning-bolt icons) to integrate apps and facilitate automatic data transfer.

diately. Likewise, at a virtual event, someone will start speaking with their microphone muted, a presenter's video feed will get stilted, or, even worse, their connection will completely drop. The challenge is that in the virtual event space, the lack of visual cuing and feedback can disorient presenters and heighten any anxieties they may have about public speaking. Add a little bit of anxiety about the technology to the mix, and things can quickly go sideways.

If you've planned well, you will minimize the number of these snafus and be able to masterfully address those that do occur without breaking your (and your team's!) confident stride. Below we offer tried-and-true methods that have worked well for many virtual events hosted by our respective chapters.

- To avoid connection issues (video freezing and connection drops), encourage presenters to connect their computer to their router with an **Ethernet cable**, not Wi-Fi, for the event. The cables cost less than $10, are easy to acquire and use, and offer the user a stable connection.
- Use a **headset** for better sound quality and minimization of background noise and encourage presenters to do the same.
- Have a list of the **mobile numbers** of all presenters and team members so you can text them if a technical situation arises.
- Actively foster an **open atmosphere** that provides opportunities for presenters and the team to ask questions.
- *Always* have a **rehearsal** session for presenters and hosts during the week before the session. Nothing dissipates anxiety more quickly or thoroughly than hands-on practice with the technology and interaction with each other over the platform.
- **Manage expectations** of the presenter, the team, and the attendees. Your meeting will not be perfect, but it will be great, and everyone will come out of the experience looking good.

Event Debrief

After each event, it is important for the core group of volunteers to discuss what went well and what needs to be improved. This way, the chapter volunteers can continue to grow, and the group can develop additional confidence for the next event that is hosted. These lessons learned are helpful to share with the board so that chapter leadership understands the needs and requirements for hosting each event type and what the current volunteers are able to do. Continuing to cross-train volunteers in hosting virtual events will help them both as volunteers and as professionals.

Summary

There are many benefits to hosting virtual events for your chapter, including, of course, connecting when everyone feels more isolated but also including continuing to offer educational programming, allowing more members to attend/join the event (fewer transportation/distance challenges), and trying something new. We've provided steps to deal with a majority of the hurdles that a chapter may face in setting up a virtual event, and there is a checklist to help chapters plan their first webinar (Supplemental Material). From the GCAC perspective, the chapter was thankful to have advice and guidance from other chapters (Southwest and Rocky Mountain) that helped us start our virtual events. GCAC volunteers have also found that there are some policies that need to be developed in light of having these events (where the webinar recording is stored and how long is it available, how much to charge, who should be trained as event hosts [technical and attendee-facing], etc). As volunteer-run organizations, the Southwest Chapter and GCAC are thankful for those who have helped make these events a success and who have been willing to learn alongside our chapters.

Author declaration and disclosures: *The authors note no commercial associations that may pose a conflict of interest in relation to this article.*

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Reference

1. Zoom video conferencing plans & pricing. Zoom website. Accessed October 14, 2020. https://zoom.us/pricing

A Note From AMWA Leadership

AMWA chapters have brought many meaningful networking and learning opportunities to members at the local and regional levels over the past year despite the challenging circumstances caused by the pandemic. This is their charge, as the stated purpose of chapters is to bring together AMWA members and others who are engaged or interested in medical communication, promote standards of excellence in medical communication, and provide educational programs and meetings within the chapter territory that lead to, support, and enhance medical communication.

Specifically, AMWA chapter charters require at least 4 in-person events per year. Due to the pandemic, the AMWA Board of Directors (BOD) voted to modify these expectations and allow chapters to fulfill the requirements for local networking and education via online events through March 1, 2021. The AMWA BOD will be meeting again soon and is prepared to extend this recommendation as needed.

Chapter leaders have used a variety of online tools and adapted to these challenging times to ensure that our regional chapters continue to fulfill their missions and meet members' needs. The BOD applauds the chapter leadership for their resourceful and dedicated efforts; nevertheless, we all look forward to a time where in-person meetings will once again be safe.

SUPPLEMENTAL MATERIAL

Chapter Webinar Checklist

J. Kelly Byram and Mia DeFino

Schedule the Session

- ❑ Create the webinar in Zoom.
  - Require registration and do not override the default safety settings (eg, the password requirement).
  - Presenters can be added to the event during configuration or at a later time.
  - Polls can be added to the event during configuration or at a later time.
- ❑ Capture the registration link for use in EventBrite and/or chapter website's event page.
- ❑ Configure the confirmation emails to presenters and attendees. Before going live, have sample communications sent to you from the Zoom application to assure they are correct.
- ❑ Create a sample registration for the session so you may monitor the performance of the applications used (eg, know when the confirmation emails have been sent). Register the sample attendee in the way you intend your attendees to register. If using EventBrite and charging a fee, you can use the guest function to circumvent fee collection.

Integrate the Apps

If you are using a ticketing app like EventBrite to handle registrations

- ❑ You will likely be able to automatically integrate it with your payment app (like PayPal) via menus in the ticketing app without using a third-party app to connect them.
- ❑ You can use Zapier to integrate the ticketing app with other programs to automate other processes, for example:
  - EventBrite integration with Zoom to automate the registration function.
  - EventBrite integration with Google Sheets[a] to provide stakeholders with real-time registration information.

Prepare the Presenter

- ❑ Schedule a run-through on the platform with the presenter, so they are comfortable with the platform and other aspects of the event. Discuss the intro and the exit, if they would like you to ask questions from the chat, etc. Presenters should provide their cell numbers and host should reciprocate—these are for use if technical issues arise during the session. Encourage presenters to use a headset (for improved sound quality) and an Ethernet cable (rather than Wi-Fi, for improved bandwidth and connection reliability).
- ❑ Clarify with presenter that
  - The session will not be recorded.[b]
  - They are not to promote their products or services during the session.

Promote the Session

- ❑ Use a general chapter email account (or email forwarding account) as a point of contact for added security/privacy.
- ❑ Provide the chapter's website manager, social media team, and communication coordinator with webinar information and the registration link. Do not publish the direct link to the event—always publish a registration link to discourage bad actors with disruption (not participation) on their agenda.
- ❑ If you would like to promote your session beyond your chapter's membership, post information about the session to AMWA Engage. Include
  - Webinar title
  - Presenter's name, title, and affiliation
  - Webinar date and time (specify time zone)
  - Webinar description
  - Registration link

Register Attendees

- ❑ Register attendees via EventBrite or directly via the web platform.[c] If tickets are not free, coordinate establishing a link between the selected app and the chapter payment-processing app (eg, PayPal) with the chapter treasurer.
  - Require full names for the event registrations at a minimum.
  - If charging for the event, include a disclaimer.
    - Our chapter has a liberal refund policy for our events, but you may also *adopt and adapt* the AMWA refund policy (https://www.amwa.org/page/refund_policy) for paid events if appropriate.
- ❑ Registration confirmation should indicate that the link for the session will be sent 2 hours (more or less) before the event. You can, of course, provide the information to join the event in the original confirmation email, but realize you will need to resend the information (via Zoom) again at a time closer to the event. Confirmations can be sent and resent manually or automatically. If you do not send information for joining the event on the day of the event, you will experience a wave of emails requesting login information in the minutes just prior to or just after the starting time for the event, when you have other tasks at hand for the event.
- ❑ Do not publish the link to the event; publish the link to the registration.

Host the Session

- ❑ Greet the attendees and introduce the event and the speaker. (Our chapter has a slide-deck template, which we update for each event, for this purpose.)
- ❑ Remind attendees of 2 specifics about the webinar format.
  - Webinar attendees are muted and unseen.
  - Please submit questions via chat.
- ❑ Assist presenter(s) with questions submitted during the session. (The host's role during the event should be negotiated during the rehearsal, but usually assistance with questions is standard operating procedure for most webinars.)
- ❑ Watch the time and cue the presenter as necessary.
- ❑ Monitor your "webinars" email account for people with issues right as the webinar is about to start (it happens). Almost without fail, they just need to retrieve their login information from their SPAM folder.
- ❑ Don't forget to run the polls.
  - Presenter's polls engage the audience during the event.
  - Chapter polls (eg, how did you like the event?) can collect feedback for the events committee and help improve chapter programming.
- ❑ Close the event by
  - Thanking speaker(s).
  - Thanking attendees.
  - Reminding attendees about upcoming chapter events.

Close out the Event

- ❑ Send presenter(s) a thank you email (and honorarium or other thank you, if you offer them).
- ❑ Write a brief report about the event and submit it to the chapter president, secretary, and Chapter Advisory Council representative. Zoom has a reporting function, from which you can retrieve the number of attendees.
- ❑ Request the event be moved from the upcoming events page on the website.
- ❑ If event was recorded, secure the recording according to your agreement with the speaker. If registrants were promised post-event access to the according, distribute the access information. If there is a time limit for accessing the event, calendar removing access.

[a] *If you opt to use any Google products in your integrations, establish a separate Google account solely for this purpose. Configure the security options on the account to restrict Google's access to data to maximize the privacy of the account and its users.*

[b] *If you choose to record the webinar, know the federal and state requirements for recording—for presenters and for attendees. Also, decide in advance where the recording will be saved and how it will be protected. Zoom can provide both space and password-based security for your recordings, but know how much space your plan allots. Last, assure that agreements with speakers are preserved and understood by all chapter personnel—posting a speaker's presentation (which is their intellectual property) on YouTube when your agreement was to allow only chapter members access to the webinar for a limited amount of time on a password-protected server can result in litigation and loss of reputation.*

[c] *You can charge for webinars using PayPal integrated with Zoom; however, for more complex ticketing (eg, different fees for members and nonmembers, or roundtable events with limited tickets per topic), the flexibility and ease of the EventBrite (or other) interface may be worth additional fees. (EventBrite does not charge a fee for free events.)*

A New Credential for My CV: Zoom Concierge

Carolyn Bernstein, MD / Associate Neurologist, Brigham and Women's Hospital, Boston, MA; Assistant Professor of Neurology, Harvard Medical School, Boston, MA

We all knew that telemedicine was coming. Pre-pandemic, my hospital had a virtual platform and I was an early user. It's almost surreal to think of what it looked like: patients would enroll and get a demo visit from the virtual visit staff a week before their scheduled visit. They would practice using the application and then would be placed on a special template for a virtual visit during my non-clinic time. I was happy to do a few of these virtual appointments because it saved some patients a lengthy trip, say from Martha's Vineyard, up to Boston. Time, cost, anxiety, weather, and other variables could all be eliminated with a virtual visit. But it didn't work very well. Every third patient was missing from the virtual waiting room, and even if the person was present, it was a mostly frustrating experience for us both. The novelty was distracting, patients were struggling to position the camera on their computers correctly, family members would walk in and out, and I found the whole virtual visit experience tough to manage.

And then there was a pandemic. Overnight, we converted to phone visits, then eventually to video visits via different platforms. At my hospital, we are mainly using Zoom, either free-standing or integrated into the medical record platform. It's encrypted and allows medical care to continue while maintaining distancing as much as possible. For some patients, a physical visit—"F2F" or "face to face," as the verbiage goes—is absolutely necessary. And that means in addition to the time, travel, and expense that predated the pandemic, live-visit patients now had to undergo careful screening, masking, and increased anxiety about entering a medical facility at a time when we struggled to understand contagion patterns and how to stay as distanced as we safely can while caring for our patients.

So, currently, much of my clinical time as an outpatient neurologist is spent on Zoom. And it is as draining and exhausting as anything I have experienced in 30 years of practice. I look at my schedule, read the staff's careful notes documenting that they have asked patients to be ready prior to the visit and how to download Zoom and prepare. I open my Zoom waiting room and find…no patient. I wait a few minutes, knowing that if I get behind, people later will begin to call my office asking where I am. As I start to look for my first patient, step one is to call them via a separate app that blocks my cell phone number and shows the call as coming from my office. Who answers an unknown number today? Or a blocked ID? The answer is nobody. I finally get the patient. Often, it's surprise: "Dr Bernstein! How are you?" And I answer, "I'm looking for you in my Zoom waiting room." Silence. Some patients didn't open the directions for the visit. Others don't know how to use Zoom. They didn't realize they had to download it in advance. Some don't have tech access that allows them to do a virtual visit; older computers have no camera. Others try using a smartphone, but they are fearful of using their data, as it's expensive if they are not using Wi-Fi to connect. I often walk patients through how to download the Zoom program or how to get on via the integrated platform. And finally, we are waving to each other in one of the most bizarre starts to a medical visit I have ever experienced. But then the sound! Gestures sometimes work but I have learned to write "Turn on the mic" on an index card and hold it up to the computer. Or I may end up having to call the patient once again via the separate app—some just can't get the mic turned up, and we both see each other via the computer camera lens while talking on the phone simultaneously. There may be a friend or family member present to help, which is great, but eliminates an element of privacy and confidentiality. People are sometimes logged in under "iPhone," leaving me to wonder just who it will be when I admit them. I will send a chat message asking, "Who is this

please?" and sometimes they know to enter their name as an identifier. Eventually, we get to the medical visit, but not before a pandemic discussion, a life update, and—in a particularly heart-breaking moment—each person will ask me how I am, prompting me to reassure them that I am okay and genuinely happy to see them despite the circumstances.

> I'm explaining, I'm listening, I'm metabolizing, I'm trying to de-Zoomify and be as present and stabilizing as I can possibly be. **But it's not the same.**

I spend the visit simultaneously looking at the patient, minimized in the top of my screen, and at the record, reviewing previous notes, updating medications, looking at imaging studies. I have visuals ready: pictures I have drawn of neural pathways, a string of mala beads that is a fine tool for explaining the twists of DNA and genetic variation, a demo injector for an important new type of medication. Sometimes, the images will go in and out and my patient will disappear for a few moments. I have learned to talk and type at the same time. And that works just fine for the data collection part of the visit. But once we get to the actual discussion, I try to channel the part of an in-person visit—that pre-pandemic ideal—when you push your chair back and sit as 2 human beings, as doctor and patient, and really talk. So, I maximize the patient's image and for those moments, it feels like we are really having a conversation. I'm explaining, I'm listening, I'm metabolizing, I'm trying to de-Zoomify and be as present and stabilizing as I can possibly be. But it's not the same.

Zoom concierge. The dictionary defines "concierge" as "an employee of a hotel who assists guests." In the broadest sense, that is what I and my medical colleagues do as we look for our patients so that we can take care of them. Trying to get them onto a safe virtual site. Figuring out how to make sure they have the best experience they can, especially under these daunting circumstances. Supporting them through a pandemic that has blown up our world. I never planned to become a Zoom concierge. The metaphor of having to go searching for patients to start the visit invokes an image of an epic quest. Which it is. Navigating this pandemic is an epic quest to find a way that we can survive. If I can meet my patients wherever they need me to be, then I'm okay to add this credential to my CV. The novel coronavirus has moved us all to places we had never anticipated, including Zoom.

Author declaration and disclosures: *The author notes no commercial associations that may pose a conflict of interest in relation to this article.*

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FROM THE PRESIDENT / INAUGURAL ADDRESS

Looking Forward...Together

Gail V. Flores, PhD / 2020–2021 AMWA President

I am so honored to have been elected as the next president of AMWA. I remember being a bit starstruck when I first listened to AMWA leaders like Brian Bass, Cyndy Kryder, and Lori Alexander speak at the first annual conferences I attended, and I am humbled to be following in their AMWA President footsteps. I'm also lucky enough to now call them all valued colleagues and dear friends because that's what happens in AMWA: we are a welcoming and caring community of medical communicators, which leads to long-lasting friendships and deep, mutual respect.

Like about 35% of our members, I am a freelancer. At the beginning of my career, on my very first conference call with a sales training client, another medical writer suggested that I join AMWA and the Pacific Southwest Chapter. I did, and that writer—Sue Hudson, former Chapter President and AMWA National President—is now another valued colleague and dear friend. Volunteering for AMWA first at the chapter level as Membership Coordinator and then at the national level on the Board of Directors had been an extremely rewarding experience, with many additional friendships made along the way.

I've always been a numbers person. I can memorize phone numbers, addresses, and birthdays with ease. Like many people, for years I looked forward to how cool 2020—the year that sounds like perfect vision—would be. Personally, it marked my 20th year as a mother, my 20th year as a medical writer, and my 20th year in AMWA, so it was going to be an extra cool year for me, the numbers person.

Fast forward to today, near the end of the year. I'm sure we can all agree that we never foresaw this version of 2020! Nevertheless, I am so proud of what AMWA members, leaders, and staff have achieved during this very unexpected year.

When our world changed in March because of the coronavirus disease 2019 (COVID-19) pandemic, AMWA chapter leaders rose to the challenge of converting in-person education and networking events into virtual events, all while dealing with the impacts of the pandemic on their personal and professional lives. Discussions on AMWA's Engage Online Member Community have been livelier than ever as members continue to reach out and support each other while we're all isolated at home. Virtual networking has allowed members throughout the organization to meet new colleagues and see old friends without geographic boundaries.

The decision to host the 2020 AMWA Medical Writing & Communication Conference as a virtual event was heartbreaking but necessary. Nevertheless, the AMWA team, including staff, the Annual Conference Committee chaired by Elise Eller, and our education department, rose to the challenge and planned and developed what I think we all agree was a fantastic event. Special thanks also go to the conference presenters and roundtable leaders who willingly adapted their content to a virtual format.

AMWA increased its online learning library tremendously in 2020. Although this effort was initiated before the pandemic hit, the timing ended up being right. Participation in AMWA webinars has been higher than ever this year, and several other types of virtual learning programs have been introduced. Be sure to read Lori Alexander's article in the Fall issue of the *AMWA Journal* for a complete description of AMWA's current and future educational offerings.

Now that we're closing out 2020, we have a lot to look forward to in 2021. As we continue to navigate these challenging times, AMWA is committed to providing valuable programs and resources to our members. In addition to checking out our new virtual educational webinars and programs, we encourage chapter leaders and members to continue to network virtually at chapter events and on Engage.

In the coming months, watch for the release of a joint position statement from AMWA and our sister organizations, the European Medical Writers Association (EMWA) and the International Society for Medical Publication Professionals (ISMPP), regarding the adoption of standards to better ensure the integrity of published scientific and medical information. The rush to publish data has been magnified in the COVID-19 era, and it's critical that the premier medical communication organizations make a call to action for medical communicators to best ensure data integrity, quality, transparency, and peer review of medical publications.

In 2021, AMWA plans to continue to connect with and engage medical writing executives. AMWA has also recently formed a Value of Medical Writing Working Group, which

has been tasked to define and quantify the value of medical writing—an initiative that resulted from the 2019 AMWA Executives Forum in San Diego. This group will be creating and conducting a survey to collect data regarding the value of medical writers and plans to provide progress updates in the *AMWA Journal* and at AMWA's 2021 Medical Writing & Communication Conference and Executives Forum.

As I begin my term as AMWA President, I am so thankful for the support of my fantastic group of fellow officers, Katrina Burton, Ann Winter-Vann, Julie Phelan, and R. Michelle Sauer Gehring; the 2020-2021 Board of Directors; and the ever-amazing AMWA staff. Like many, I'm eager for the world to get back to "normal"—whatever that normal looks like. I look forward to seeing as many of you as possible at AMWA's 2021 Medical Writing & Communication Conference next October. Until then, I wish the very best for you and yours. We're in this together!

Announcing the 2020–2021 AMWA Board of Directors

Gail V. Flores, PhD / 2020–2021 AMWA President

As stated in Article III of the AMWA Bylaws, the Board of Directors (BOD) manages and controls the property, affairs, and business of AMWA. The BOD approves the budget, the slate of nominees for elected office, and any proposed amendments to the Constitution or Bylaws. It also appoints members of all committees, workgroups, and task forces; authorizes dissolution of AMWA; and fulfills such other duties as are specifically mentioned in the Constitution and Bylaws and as required by law. The BOD also has the power to establish reserve and endowment funds and approves the plans and regulations necessary to administer such funds. The BOD may, by general resolution, delegate to AMWA elected Officers or committees such powers as provided for in the Bylaws. The BOD empowers the Executive Committee (comprising the President, President-Elect, Immediate Past President, Secretary, and Treasurer) to act between meetings of the full BOD.

AMWA strives to have a BOD that is representative of the organization's membership, reflecting characteristics of the member population. Each at-large Director shall be nominated by the President-Elect and approved by a majority of the BOD. The Bylaws specify that the BOD shall be between 12 and 17 voting members and shall include the elected Officers, Chair of the Chapter Advisory Council, and at least 5 appointed at-large Directors.

At its meeting in September 2020, the BOD approved the following individuals to serve as at-large Directors for the 2020-2021 term:

- Brian Bass, MWC
- Loretta Bohn, BA, ELS
- Sarah Dobney, MPH
- Elise Eller, PhD
- Jennifer Minarcik, MS
- Lynne Munno, MA, MS
- Laura Sheppard, MBA, MA
- Shawn Watson, PharmD, PhD, BCPS

The BOD also approved the Chair of the Chapter Advisory Council (a voting member of the BOD):

- Kimberly Korwek, PhD

AMWA 2020-2021 Officers:

- President: Gail V. Flores, PhD
- President-Elect: Katrina R. Burton, BS
- Secretary: R. Michelle Sauer Gehring, PhD, ELS
- Treasurer: Julie Phelan, MD, MBA
- Immediate Past President: Ann Winter-Vann, PhD

The 2020-2021 BOD began its service on November 6, 2020, at the conclusion of the 2020 Annual Business Meeting.

A Note of Appreciation

R. Michelle Sauer Gehring, PhD, ELS, CRA / Board Liaison to the *AMWA Journal*

Over the last four years as the *AMWA Journal* Editor-in-Chief, Jim Cozzarin, has tirelessly worked to advance the mission of the *Journal*, engage our membership, and provide issues that meet the needs of medical communicators today.

The *Journal* has not escaped what has been the major theme of 2020—change. When Jim announced he would not be renewing his contract, it was with mixed emotions that I received the message. As the Board Liaison to the *Journal* this past year, I have had a front row seat to Jim's kind and professional leadership that embraces a positivity that is second to none. As a friend, I celebrate with him as he embraces his role as a grandfather and takes on caretaker responsibilities. However, I mourn the loss of his leadership and contributions to the *Journal*. Despite the challenges and obstacles that arise, Jim provides a calm presence that meets the situation. His tone, ingenuity, and optimism have enabled the *Journal* team to thrive.

Jim wanted to ensure that the *Journal* responded to members' needs, and he consistently sought to include articles that were "members-focused." With this in mind, he added two new sections—Everyday Ethics and Members Matters. I am sure many of you have enjoyed these additions and gained insight, as well as actionable advice from their content. His strong network has led to a significant expansion in the number of proofreaders, contributors, and reviewers. The number of articles submitted and published, has increased to well over 100 articles being published in the current form.

Many of those articles and content have been "online exclusives." Early in his tenure, Jim acknowledged the leading presence of digital communication and he championed this effort, which enabled the *Journal* to quickly shift to online distribution this past summer in response to the pandemic. I encourage you to take a few moments to search the *Journal*'s website. As you search the previous issues, you will find a treasure trove. From themed issues to timely summaries from conferences, from reviews of scientific advancements to detailed editing quandaries, each issue is packed with information and resources. While it has taken a village to publish each article, it has taken dedicated leader to make each issue great.

So many of Jim's efforts and accomplishments have resulted in foundational improvements that will benefit the *Journal* and AMWA members in the years to come. Alongside journal content, Jim focused on journal processes. His attention to detail and improvement of an efficient workflow has resulted in a revised peer review policy, an updated style guide, revised authorship and copyright forms, and an outline for curated instruction to contributors. With each improvement process, the *Journal* moved forward, and those efforts have set a strong foundation for the next Editor-in-Chief.

Taking on the top position for the *Journal* is truly a labor of love. On behalf of the Board and of a truly thankful membership, I want to relay our deepest gratitude to Jim.

FROM THE EDITOR

JAMES R. COZZARIN, ELS, MWC

Last Word

In December of 2016, I was fortunate to begin my tenure at Editor-in-Chief of the *AMWA Journal*. In my first issue, I wrote briefly on the topic of communication as "our biggest challenge for the future." Now, nearly 4 years later, communication, and our role in biomedical communication, has never been more important.

As biomedical communicators we play a vital role in bringing health/science communications to a wide range of audiences: regulatory health authorities, clinicians and prescribers, formularies and pharmacies, the pharma/med device/biological/radiation health industries, marketing, and patients/healthcare consumers—we touch them all. As such, we are in a unique position to help ensure the accuracy and reliability of health-science communications, so that the right people get the right information at the right time—an incredible opportunity and an awesome responsibility!

Why do we do what we do? What drives us to serve in this capacity, to do our best day-in and day-out? We each have our reasons. I have been fortunate to work at the same company (ProEd Communications) for the past 26 years—what keeps me going? Why have I stayed so long? I keep the patient foremost in my mind. Whether the communication I'm helping to develop is a congress poster, a journal article, a regulatory submission document, or a slide deck for presentation to an FDA Advisory Committee meeting, I know that, in the end, the patient will benefit. A panel member may recognize that benefits outweigh risks and move a product towards approval, a congress attendee may hear about a new product or a new application of an existing product, a physician may gain a clearer understanding of prescribing information. The work we do helps patients gain access to the products they need. The work we do helps improve people's lives.

What greater calling?

And so, I am proud to be a member of the medical communications community. And I have been fortunate indeed to be able to serve as your Editor in Chief for the past 4 years—helping to drive our association's flagship publication, bringing you content that reflects the interests, concerns, and expertise of medical communicators. I hope that the *Journal* has informed, inspired, and motivated you and that, just maybe, we have indeed advanced the broader profession, in support of AMWA's mission.

As I mentioned in my first issue, it takes a village to produce the *Journal*. So, it is only appropriate that I take a moment to thank my friends and colleagues who have made the past 4 years possible. First, I must thank the Editorial Board and *Journal* contributors, who have been steadfast in their dedication and participation in developing or driving fresh content to the *Journal*. I also thank Ann Winter-Vann, Tamara Ball, Theresa Singleton, and Michelle Sauer Gehring, for their support as liaison to the AMWA Board of Directors, and Lori Alexander, Kathy Spiegel, Cyndy Kryder, and Ann (again) for their support as President. Finally, I thank Jennifer Workman, our Managing Editor; Amy Boches, our Graphic Designer; Shari Rager, our Staff Liaison; and Susan Krug, our Executive Director. Without all of your support, the *Journal* would not be possible!

It has been my deep privilege and honor to serve as steward of the *AMWA Journal*. I look forward to reading future issues, and I encourage everyone in the association to join me in welcoming our new Editor in Chief.

Thank you!
—Jim

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