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May 15th, 2020

Dear Regina,

Welcome to BioMarketing Insight's monthly newsletter.

Hope everyone is well and safe. This month I like to cover "Why it is important that we all wear a mask to stop the spread of COVID-19." Click on the link in the Table of Content to read it.

Since the stay-at-home advisory has been extended (dates varies depending on what state you live in), many are going stir crazy from being at home and wondering what they can do. Click on this [fun activities](#) link to take advantage of visiting virtually museums around the world, Disney World virtual tours, the Grand Canyon and other National Parks, and the Newport Mansions, all at your fingertips to enjoy from your home.

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enjoy the music from the Berklee School of Music in their song "What the World Needs Now," other inspirations and ending with Celine Dion and Josh Groban with "The Prayer".

In April I covered "The Facts About COVID- 19" If you missed this article, click [here](#) to read it.

Please read on for other current news in the Table of Content below. The next newsletter will be published on June 15th, 2020.

We encourage you to share this newsletter with your colleagues by using the social media icons below, or by simply forwarding this newsletter or use the link below. Should you or your colleagues want to join my mailing list, click on "join my email list" link below.

Please email [me](#), Regina Au, if you have any questions, comments, or suggestions.

Sincerely,
Regina Au
Principal, New Product Planning/
Strategic Planning Consultant
[BioMarketing Insight](#)



Table of Contents

[Developing a Product? Commercializing a Product?](#)

[Fun Activities for the Family](#)

[Inspirations](#)

[Save the Date: BioProcess International Conference - September 21-24, 2020](#)

[Science from Scientists](#)

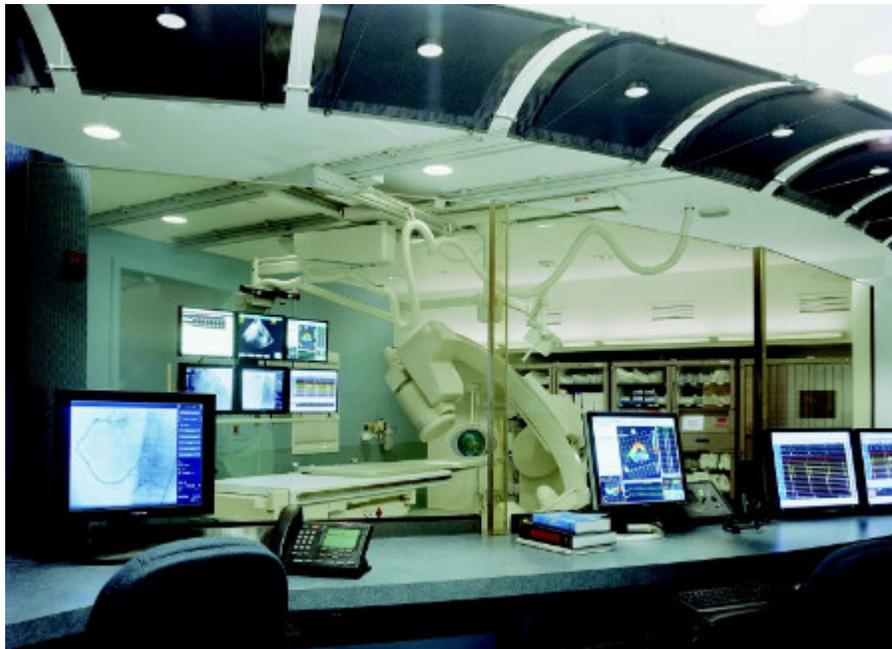
[Why Conducting Marketing Due Diligence Early in Product Development Is Important](#)

[Why it is important that we all wear a mask to stop the spread of COVID-19](#)

[Closing Thoughts](#)

[Previous Newsletters](#)

[Join my mailing list](#)



Developing a Product? Commercializing a Product?

If you are developing a product and have not conducted the business due diligence to determine commercial viability or success, contact [me](#) for an appointment. For successful commercial adoption of your product or looking to grow your business, contact [me](#) for an appointment.

For more information on our services, click on the links below:

[Product Development](#)

[Market Development](#)

[Marketing Strategies](#)

[Top](#)



Fun Activities for the Family

[Tour a National Park](#), 32 parks to choose from in the comfort of your home.

Take a 360 degree virtual tour of [Disney World](#). We are all kids at heart.

If you like museum, take a [virtual tour of museums](#) around the world.

If you haven't been to the [Newport Mansions](#), your virtual tours are here.

[Top](#)



Inspirations

Enjoy the song "What the World Needs Now" virtually with the students from the Berklee School of Music.



We Will Get Through It Together



A Little Bit of Humor Helps Too

I like to thank Carol, Joan, Denise, and Sharon for forwarding these inspirations to me to share with you.

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Let's End with Celine Dion & Josh Groban Singing "The Prayer"

[Top](#)

BioProcess International

Save the Date: BioProcess International Conference:
September 21-24, 2020, Boston Convention Center

I am pleased to announce that I will be speaking at the BioProcess International Conference. More details to follow soon. For more information on the conference, click [here](#).

[Top](#)

Science from Scientists

I'm pleased to announce that I was a judge for the Spofford Pond School's 4th Annual

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To find out more about this organization, click [here](#).

[Top](#)

BioProcess International

Why Conducting Marketing Due Diligence Early in Product Development Is Important

I am pleased to announce that my article entitled "Why Conducting Marketing Due Diligence Early in Product Development Is Important" was published in the BioProcess International Magazine. To read the article, click [here](#).

[Top](#)



Why it is important that we all wear a mask to stop the spread of
COVID-19

The CDC and the state of Massachusetts has recommended and mandated respectively

should and here are the reasons why.

Virologists and epidemiologists are racing to understand COVID-19 and how best to treat it. This virus is different from the rest of the viruses such as influenza and even SARS-CoV-1, Severe Acute Respiratory Syndrome (SARS) in 2003 and Middle Eastern Respiratory Syndrome (MERS) and therefore, there are a lot unknowns.

The only thing we do know is that COVID-19 is deadly and highly transmittable. Why? This is a hard question to answer because in performing "[contract tracing](#)" epidemiologist can only tell who the patients has been in close contact, but it cannot tell you how the virus itself was transferred from the contagious person to those whom they infected. One explanation is aerosol transmission.

We are all familiar with "direct or indirect 'contact' modes which require a susceptible individual to physically touch themselves with a virus-contaminated hand; 'direct' indicates that there is person-to-person contact between infected and susceptible hosts (such as by a handshake) in transferring the virus, while 'indirect' implies transmission via a '[fomite](#),' which is an object like a hand-rail or paper tissue that has been contaminated with (the) infectious virus."

In contrast, airborne transmission requires no physical contact between infected and susceptible individuals and may occur by two distinct modes: 1) During a sneeze or a cough, "droplet sprays" of virus laden respiratory tract fluid, typically greater than 5 mm in diameter, impact directly on a susceptible individual; and 2) a susceptible person can inhale microscopic aerosol particles consisting of the residual solid components of evaporated respiratory droplets, which are tiny enough (<5 mm) to remain airborne for up to 3 hours. Much of the focus has been on 'violent' expiratory events like sneezing and coughing.

Now, there is strong evidence that many infected individuals who transmit COVID-19 are either minimally symptomatic or not symptomatic at all. Therefore, one wouldn't know whether an infected individual may be carrying the virus and one tends to be more relax about taking precautions as one would with an infected person.

In [China](#), there were 3 studies that reported the existence of asymptomatic individuals who tested positive for the SARS-CoV-2, and virus transmissions from asymptomatic carriers have been identified (Rothe et al. 2020). Recently, epidemiologists led by Shaman et al. (Li et al. 2020) calculated that about 86% of infections in Wuhan, China, prior to the implementation of travel restrictions, were "undocumented" individuals, those with "mild, limited, or no symptoms" who were never tested. Notably, their modeling indicated that 79% of the actual documented cases were infected by undocumented individuals.

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performed by Booth et al. (2005) established that hospitalized patients infected with SARS during the 2003 epidemic emitted viable aerosolized virus into the air. Although SARS-CoV-1 is related to SARS-CoV-2 these viruses are not the same. Recent experimental work by [van Doremalen](#) et al. (2020) demonstrated that aerosolized SARS-CoV-2 remains viable in the air with a half-life on the order of 1 h; they concluded that both "...aerosol and fomite transmission of SARS-CoV-2 is plausible, since the virus can remain viable and infectious in aerosols for hours and on surfaces up to days."

If pre- or asymptomatic infected individuals do not sneeze or cough, how do they generate aerosols? It has been long ago established that ordinary breathing and speech both emit large quantities of aerosol particles (Duguid 1946; Papineni and Rosenthal 1997). These expiratory particles are typically about 1 micron in diameter, and thus invisible to the naked eye and those unfamiliar with aerosols are completely unaware that they exist. The particles are sufficiently large enough to carry viruses such as SARS-CoV-2, and they are also in the correct size range to be readily inhaled deep into the respiratory tract of a susceptible individual (Heyder et al. 1986). Recent work on influenza (another viral respiratory disease) has established that viable virus can indeed be emitted from an infected individual by breathing or speaking, without coughing or sneezing (Yan et al. 2018).

Have you ever come across an individual who spits when they talk? These people are "speech superemitters" and Asadi et al. established that, for unclear reasons, are individuals who emit an order of magnitude more aerosol particles than average, about 10 particles/second. A ten-minute conversation with an infected, asymptomatic superemitter talking in a normal volume thus would yield an invisible "cloud" of approximately 6,000 aerosol particles that could potentially be inhaled by the susceptible conversational partner or others in close proximity.

With respect to virology, information is needed regarding the average viral titer in the respiratory fluid and the emitted aerosol particles, as well as the minimum infectious dose for COVID-19 in susceptible individuals. Aerosol scientists along with virologists are needed and other to establish and validate these finding.

But given the large numbers of expiratory particles known to be emitted during breathing and speech, and how highly transmissible COVID-19 is, a plausible and important hypothesis is that a face-to-face conversation with an asymptomatic infected individual, even if both individuals are cautious not to touch, there might be adequate amounts to transmit COVID-19.

[Top](#)

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Closing Thoughts

The world has never seen a pandemic like this before. Not even Ebola, SARS-1 or MERS has spread so fast and has been so deadly. There is a lot that we don't know about COVID-19 but scientist are finding out more and more at a remarkable speed. In addition the development of diagnostic tests, vaccines and treatments has been unbelievably expedited.

However, the only method to combat this virus is to have everyone tested so we know who to isolate for 14 days. Viruses can only survive through a human host and replicate itself by coming in contact with more human hosts. It has been established that the viruses can be transmitted by direct and indirect contact. It has been proven with other viruses that aerosol droplets through sneezing or coughing can transmit the disease through inhalation or coming in contact with surfaces covered with the virus.

Now there is a possibility that asymptomatic or pre-symptomatic individuals that carry the virus can spread it through breathing and speaking. In order for new cases of COVID-19 to decrease, everyone must obeys the social distancing of 6 feet or more and to wear a face mask at all times because there may be times when social distancing is not possible.

There are many people who feel they either will not get the disease and take their chances because they are young or they have a constitutional right to do whatever they want (some are protesting to end the social distancing). COVID-19 affects all ages and one can't predict how a person will respond when they contract this disease. Some of the healthiest people with no underlying disease were critically ill and hospitalized in intensive care for weeks.

But those ignoring social distancing and wearing mask just don't care and are only thinking about themselves and not the well being of others; we will never go back to the norm with these people. If you see someone who is not obeying the social distance and/or not

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Because we are all in it together.

As of 5/14/20, there is a total of 5,482 deaths, and 82,182 confirmed cases of COVID-19 in Massachusetts; and a total of 301,160 deaths and 4,420,743 confirmed cases worldwide. These are extremely scary statistics.

[Top](#)

Should you have any questions or need of assistance with your business due diligence, determining your product's value proposition, target product profile and economic value of your product for reimbursement, feel free to contact me at 781-935-1462 or regina@biomarketinginsight.com.

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