

**Dear valued patients and colleagues**

**Something does not smell right**

Researchers and physicians are finding that loss of taste and smell can accompany COVID-19 and sometimes even be the presenting symptom. Some otherwise asymptomatic people can have this as the only manifestation of the disease. So, COVID-19 should be suspected if there is a loss of taste or smell; coronavirus testing should be done if there is no other obvious cause. So far it seems like the sensory recovery is faster for SARS-COV-2 than other viruses which cause similar symptoms. A UC San Diego expert said recovery occurs within a few weeks to a month, compared to months to a year for other common viruses.



Words of the day: Anosmia-loss of sense of smell. Dysgeusia – impairment of the sense of taste. There must a tongue twister pun somewhere in the term dysgeusia.

**After Further investigation**

According to a report in Nature magazine, the first Covid-19 deaths occurred in California on February 6, or three weeks before the first reported cases in Washington state.



Autopsy results suggest that three people in California died of COVID-19 between February 6 and March 6. Similar findings are reported in other states and are consistent with information reported previously in these newsletters.

**Quick hits of good news**

# QUICK Hits

- Germany and Denmark are reopening small shops and schools and many countries have now reportedly passed their peaks of new cases.
- Pennsylvania biotech company Inovio is generating strands of DNA it hopes will stimulate an immune response.
- Johnson & Johnson and French pharmaceutical giant Sanofi are both working with the US Biomedical Advanced Research and Development Authority to develop vaccines. Sanofi's plan is to mix coronavirus DNA with genetic material from a harmless virus, while Johnson & Johnson will attempt to deactivate SARS-CoV-2 and switch off its ability to cause illness.
- Formula 1 racing engineers at Mercedes have joined forces with University College London to develop a breathing device that can be used instead of taking patients to intensive care and placing them on a ventilator.

## **I cannot help it, a little schadenfreude**

Harvard, the epitome of higher education has a magazine. They do not like homeschooling, evidently. Here is a picture from an article in Harvard's magazine.



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## The Risks of Homeschooling

Elizabeth Bartholet highlights risks when parents have 24/...

If you look closely, this bastion of higher education and beacon of light on a hill does not know how to spell arithmetic (hint: look at the right side wall of the house). Perhaps they need a little home schooling or at least my wife to edit things like she does for me.

### This is what I can disCERN

CERN is the European Organization for Nuclear Research. More than 100 researchers and staff are joining in the fight against the coronavirus by looking at innovative ways to combat the pandemic. CERN is helping to fill in the gaps in local and international responses by providing help manufacturing of Covid-19 related products, distributing large quantities of hand sanitizers, and designing an open-source ventilator. Because of work managing gas flows and control systems with the Hadron Collider they are well positioned to work on what they are calling a HEV or High Energy Physics Community Ventilator. This is from their open source pre-publication

The HEV ventilator will be designed to the following specifications:

- Working Pressure: Up to 50 cm H<sub>2</sub>O.
- PRVC peak pressure limit set to 35 cm H<sub>2</sub>O by default with an option to increase this in exceptional circumstances and by positive decision and action by the user.
- Operation modes: PRVC, SIMV-PC, CPAP, as defined above.
- Exhaust mode: PEEP available with a set range between 0 and 5 cm H<sub>2</sub>O.
- Minute volume flow capability: Up to 20 litres/min.
- Inspiratory flow capability: Up to 120 litres/min.
- Respiratory rate: 10–30 breaths/min.



Figure 2: Preliminary CAD model of the HEV proposed design. The overall dimensions can be seen, together with the placement of the major components in the HEV cabinet.

### This is not right

As many of you, I am trying to keep my business afloat. I am not happy that some excessively big companies have been approved for a SMALL BUSINESS loan. For the most part, these large companies justify receiving SBA funds by counting their franchises as small business,. You've probably heard that Ruth's Chris and Shake Shack used this tactic. The median size of companies funded by the SBA had a whopping average \$42 million market capitalization. Harvard University, which has a \$41.9 billion endowment, also received SBA funds, but small folks like you and me are told, sorry no funds. Harvard has agreed to return the funding it received. Here are some of the fund distributions. This is big business leaving small business with crumbs. Not right.

<u>COMPANY</u>	<u>MARKET CAP (MILLIONS)</u>	<u>EMPLOYEES</u>	<u>PPP LOAN</u>	<u>ANNUAL REVENUE (MILLIONS)</u>
Shake Shack Inc.	\$1,744.26	7,603	\$10,000,000	\$594.52
Accelerate Diagnostics, Inc.	\$534.62	275	\$4,780,000	\$9.30
MiMedx Group Inc.	\$410.67	753	\$10,000,000	\$359.11
DMC Global Inc.	\$401.70	741	\$6,700,000	\$397.55
Wave Life Sciences Ltd.	\$281.52	301	\$7,234,890	\$15.98
MannKind Corp.	\$262.15	233	\$4,872,860	\$63.04
Lindblad Expeditions Holdings Inc.	\$253.56	650	\$6,600,000	\$343.09
Chembio Diagnostic Systems Inc.	\$248.99	324	\$2,980,000	\$34.46
Adma Biologics Inc.	\$241.77	314	\$5,400,000	\$29.35
Ruths Hospitality Group Inc.	\$232.03	5,740	\$20,000,000	\$468.03
Legacy Housing Corp.	\$216.42	800	\$6,545,700	\$168.96
Misonix Inc.	\$196.35	125	\$5,199,487	\$38.85
OptiNose Inc.	\$183.62	221	\$4,446,948	\$34.63
Collectors Universe, Inc.	\$181.62	434	\$4,200,000	\$72.45
Digimarc Corp.	\$181.07	216	\$5,032,000	\$22.99
Fiesta Restaurant Group Inc.	\$169.06	10,480	\$10,000,000	\$660.94
Workhorse Group Inc.	\$159.72	81	\$1,411,000	\$0.38
Quantum Corp.	\$155.45	800	\$10,000,000	\$402.68
Joint Corp.	\$152.71	150	\$2,727,970	\$48.45
CRH Medical Corp.	\$145.19	44	\$2,945,620	\$120.39

This is just the first 20, go to <https://www.wsj.com/articles/these-are-the-public-companies-that-got-small-business-loans-11587493742> for more (you need a Wall Street Journal account). Please note those numbers under market capitalization have six zeroes removed because they are listed in millions. Just like your business, right?

### **Medicine and music**

At the beginning of the 20<sup>th</sup> century, infectious diseases were still the main cause of death in the western World. TB was common as was endocarditis, an infection of the heart. Gustav Mahler had been in fragile health throughout his life. Some scholars report that as a boy Mahler suffered from recurrent tonsillitis which led to rheumatic fever. As a result, he developed narrowing of the mitral valve or mitral stenosis. He remained asymptomatic for years.



In 1907 Mahler's daughter died. At the same time, Mahler's general practitioner listened to his heart and diagnosed Mahler with compensated valvular heart disease, most likely mitral stenosis. Four years later, while conducting his 7th symphony, Mahler again suffered tonsillitis and could barely finish conducting. He went to the hospital to rest and soon after, collapsed after repetitive fever spikes and shaking chills. His doctor, a famous NY professor named Emmanuel Libman, immediately diagnosed Mahler with endocarditis. The brilliance of this diagnosis was confirmed when Dr. Libman's assistant drew 20 ml of Mahler's blood and cultured it. The culture showed *Streptococcus viridians*, confirming the diagnosis of endocarditis. Unfortunately, at that time, an effective treatment was still decades away. Penicillin was not discovered until 1928 and was not commonly available until after WWII. Mahler's disease lasted 3 months during which time he became weaker and weaker. Mahler went to France for a second opinion. French physicians confirmed the diagnosis of endocarditis. In despair, Mahler took the train home to Vienna where his condition deteriorated and he died.

It's not easy to jump into Mahler. Perhaps this 4<sup>th</sup> movement Adagietto of symphony No.5 is the best place. It is truly spectacular. It is only 10 minutes and I highly suggest you listen.

<https://www.youtube.com/watch?v=CFQQsu6VBYA>

Once more, thank you for following along. Stay well, keep up your spirits, we have rounded the corner and are heading down the homestretch.

Reed