Trickle Research

Every raging river, every great lake, every deep blue sea starts … with a trickle

Research Update

Aethlon Medical

(NASDAQ: AEMD)

Report Date: 10/13/20

12- 24 month Price Target: $9.00

Allocation: 4

Closing Stock Price at Initiation (Closing Px: 07/22/20): $2.14

Closing Stock Price at This Update (Closing Px: 10/12/20): $1.48

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Disclosure: Portions of this report are excerpted from Aethlon Medical's filings, website(s), presentations or other public collateral. We have attempted to identify those excerpts by *italicizing* them in the text.

As we noted in our initial coverage of Aethlon Medical, we have followed the story for several years now. Over those years we have often been perplexed by the trading in the stock. If there is anything we have learned, it is probably that there is a fair amount of skepticism in the street about the company's technology and their ability to ever monetize it. The trajectory of the stock since the time of our initiation in July is probably an indication of that.

Since the time of our initiation the stock has struggled and as near as we can tell the only piece of information that may have precipitated that was a comment in their earnings call from August 11 (2020) wherein they addressed a single Covid19 patient they had treated "*at the request of their attending physician*." They noted that *while (they) could not say anything about efficacy based on a single case, the treatment had been uneventful to date"*. We do not know what that meant exactly, but the street clearly viewed it negatively.

There are a couple of things to note with respect to Aethlon and Covid19. First, they are in the process of setting up sites to conduct a trial around Covid19 patients. As they have noted in the past, that setup and enrollment has been complicated by the fluidity of the virus. That is, "hotspots" are the logical place to conduct such trials, but the hotspots are moving around so that creates challenges (actually some of the same challenges the Company has had in terms of trying to address or conduct trials around other viral outbreaks over the past several years). Second, while we are encouraged by the fact that they have been afforded the opportunity to conduct trials around the virus, we also know that the trial parameters will not be optimal. For instance, they will likely end up treating patients who have not responded well to other treatments and are therefore quite ill, which on the face makes treatment "success" more difficult. Moreover, since the Hemopurifier is designed to reduce viral load, we tend to believe it may be most effective when given earlier enough that it can reduce the likelihood of more advanced/sever disease. To translate, while the "pandemic" nature of Covid19 may provide Aethlon with an opening to demonstrate the efficacy of their device in a true clinical study protocol, for a variety of issues those efforts are not likely to be ideal. That said, we think there are some things to keep in mind in terms of information they may be able to gather in terms of Covid19 that may translate into positive data points.

First, to reiterate, Aethlon Medical has demonstrated and measured the Hemopurifier's ability to filter viruses of all kinds largely because most viruses share a characteristic called glycosylation, which basically means they contain a sugar molecule. Covid19, like Ebola and others, is a glycosylated particle. The Hemopurifier contains a naturally occurring lectin called GNA that permanently binds with the mannose sugar molecules on the virus allowing it to be trapped by the filter. Again, Aethlon's Hemopurifier has demonstrated the ability to dramatically reduce viral loads in patients, and they have demonstrated that by both measuring the patients' blood samples for viral loads before and after treatments, as well as by measuring the number of viruses captured by the device. In our view, and we think it is fair to suggest in the Company's as well as the ability of the Hemopurifier to reduce (and capture) the viral loads of patients, including those with Covid19 is a proven data point. That notion is one of the underlying themes of our investment thesis. To that point, over the course of the last 8 months or so, the world has learned a great deal about SARS-CoV-2 and/or Covid19. While certainly not complete, that learning curve has led to more testing, better treatments and ultimately perhaps, a vaccine. Specifically, one of the areas scientists have been trying to better understand, and frankly one that seems to be getting more attention as of late, is the relationship of relative viral load and patient outcomes. That is, do patients with higher viral loads tend to have higher incidences of adverse outcomes than those with lower viral loads? To edify, viral load is a measure of quantity of virus in a volume of blood, so then, the more viruses in a drop of blood the higher the viral "load". Just to frame that again, we are highly confident that Aethlon's technology can significantly reduce the viral loads of Covid19 patients. The next question then is, does reducing viral load improve outcomes?

To be sure, (apparently too simplistically) we have always *assumed* that reducing viral loads would lead to better outcomes. By extension, the notion of "viral load" seems (to us) to be gathering a greater portion of the Covid19 narrative, and some of that may be focused on the expanded use of Remdesivir, which is one of the drugs recently administered to President Trump. Remdesivir is believed to be instrumental in disrupting the replication of viral pathogens, so, technically, it may be more effective in reducing the growth of viral load than viral load itself.

Regardless, there have been a number of studies conducted recently aimed at trying to understand the relationship of Covid19 related viral load and patient outcomes. For instance from the university of Minnesota: (https://www.cidrap.umn.edu/news-perspective/2020/09/falling-covid-19-viral-loads-may-explain-lower-rates-icu-use-deaths):

> *The first study, conducted by Wayne State University researchers in Detroit, involved a retrospective analysis of 708 initial nose-throat swabs from hospitalized coronavirus patients tested from Apr 4 to Jun 5 using reverse transcription polymerase chain reaction (RT-PCR). The goal was to better describe the effects of changing viral loads—which is a measure of virus density—at a population level.*
>
> *In the first week of the study, 48.7% of viral loads were characterized as intermediate, versus 25.5% in both the low and high viral load categories. Thereafter, the percentage of high and intermediate loads progressively fell at the same time as the proportion of low viral loads rose.*
>
> *Five weeks into the study,* ***70% of the samples showed a low initial viral load, corresponding to a decrease in the death rate; 45% of patients with high viral loads died, in contrast with 32% in those with intermediate loads and 14% in those with low loads.***

To translate the study suggests that higher viral loads led to higher rates of death among the patient populations. Other studies have reached similar conclusions. While that information is helpful (and frankly supportive of our aforementioned assumption of the same), the relationship is probably not that simple. To expand, what other studies seem to suggest is that while viral load is an important determinant in patient outcomes it is certainly not the only variable. For instance, some positive Covid19 patients, even some who are ostensibly "asymptomatic" have demonstrated relatively high viral loads yet did not experience adverse outcomes. In many cases, those patients were often younger people who presumably had better immune systems that were effectively better equipped to fight the virus despite higher loads. Moreover, the progression of the disease may at some point negate the value of reducing viral load. That is, at some point, the damage caused by the virus might be irreversible enough that reducing viral load no longer matters. (That may or may not explain the *uneventful* results from the Covid19 patient Aethlon treated and we noted above). Frankly, that embodies some of our concern about the state of patients they are likely to be treating in their upcoming trial and their likely outcomes. Succinctly, we would feel better about the trial if they could treat people with higher viral loads, but in the earlier stages of disease.

We would add one final point around the viral load notion. Recognize there is an important distinction between viral load and viral inoculum (sometimes referred to as "infectious dose"). Viral inoculum is the amount of the virus a person is exposed to in their infection by and/or introduction to the virus. Much like viral load levels, some researchers postulate that higher viral inoculum is also related to poorer outcomes. That is, if a person is infected by a small dose of the virus from particulates left floating around in the restaurant, all other things remaining equal, they may have a better outcome than a person infected by multiple family members over multiple encounters sequestered in a small apartment, or a nursing home patient infected by a handful of asymptomatic healthcare workers assisting them over multiple shifts on multiple days. Put another way, (hypothetically) if a single virus could replicate 100,000 times over the course of a day, then being exposed to a single virus could push one's viral load to 100,000 in 24 hours. But if the same person were initially exposed to 10 viruses, then presumably their viral load could be 10X higher (1 million) 24 hours later. By extension, higher viral inoculum will almost certainly lead to higher viral load. Further, the degree of viral inoculum may impact the body's immune response as well. For example, by this time most are familiar with some of the complications that some Covid19 patients encounter from their own immune responses. The oft noted "cytokine storm" is a good example of that. Cytokines are part of the body's natural immune arsenal, but in some instances, those cytokines are over-expressed resulting in severe inflammation that creates its own set of complications and has in many instances proven fatal. That is the principal reason we hear so much about the use of anti-inflammatory steroids like dexamethasone. In effect, those anti-inflammatory drugs reduce the negative impact of too much immune response, but one must wonder, if cytokine storm isn't ultimately the results of higher viral inoculum

levels? Regardless we would (still) argue, that reducing viral load, especially in the early stages of viral infection, could substantially improve outcomes and potential mitigate the onslaught cascading complications like cytokine storm. We remain steadfast in our believe that Hemopurifier can be an effective front-line defense for Covid19, and its efficacy may be even more profound in earlier progressions of the disease.

Aside from viral load, we believe the scientific community is beginning to connect the dots with respect to the role that exosomes might play in the advance of viral infection as well. To revisit our initial coverage, prior to the onslaught of Covid19, Aethlon had pivoted much of its clinical efforts towards the role of exosomes in cancer metastasis. Recall, the Hemopurifier has also demonstrated efficacy in filtering *exosomes* from the blood. Moreover, recent studies such as the one referenced below describe some of that connection.

Infect Genet Evol. 2020 Nov; 85: 104422.
Published online 2020 Jun 13. doi: 10.1016/j.meegid.2020.104422
PMCID: PMC7293471
PMID: 32544615

The role of extracellular vesicles in COVID-19 virus infection

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Author information Article notes Copyright and License information Disclaimer
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7293471/#:~:text=In%20the%20case%20of%20COVID,promoting%20COVID%2D19%20virus%20infection.

From the study's abstract:

> *"Extracellular vesicles releasing from various types of cells contribute to intercellular communication via delivering bio-molecules like nucleic acids, proteins, and lipids to recipient cells. Exosomes are 30–120 nm extracellular vesicles that participate in several pathological conditions. Virus-infected cells release exosomes that are implicated in infection through transferring viral components such as viral-derived miRNAs and proteins. As well, exosomes contain receptors for viruses that make recipient cells susceptible to virus entry. Since December 2019, SARS-CoV-2 (COVID-19) infection has become a worldwide urgent public health concern. There is currently no vaccine or specific antiviral treatment existing for COVID-19 virus infection. Hence, it is critical to find a safe and effective therapeutic tool to patients with severe COVID-19 virus infection. Extracellular vesicles may contribute to spread this virus as they transfer such receptors as CD9 and ACE2, which make recipient cells susceptible to virus docking. Upon entry, COVID-19 virus may be directed into the exosomal pathway, and its component is packaged into exosomes for secretion. Exosome-based strategies for the treatment of COVID-19 virus infection may include following items: inhibition of exosome biogenesis and uptake, exosome-therapy, exosome-based drug delivery system, and exosome-based vaccine. Mesenchymal stem cells can suppress nonproductive inflammation and improve/repair lung cells including endothelial and alveolar cells, which damaged by COVID-19 virus infection. Understanding molecular mechanisms behind extracellular vesicles related COVID-19 virus infection may provide us with an avenue to identify its entry, replication, spreading, and infection to overcome its adverse effects".*

So then, *we think* the Company's efforts treating Covid19 patients will demonstrate Hemopurifier's ability to reduce viral load, but we also think it will likely demonstrate the presence of and the device's ability to eliminate exosomes. Further, while the verdict may still be out on the impact of reducing viral load past some progression of the viral infection, the above study suggests that exosome mitigation may help repair/reverse damages resulting from that same progression. Further, as the study below notes, eliminating exosomes could play a role in avoiding the recurrence of Covid19 in presumably "recovered" patients.

J Biomol Struct Dyn. 2020 : 1–12.
Published online 2020 Jul 9. doi: 10.1080/07391102.2020.1790426
PMCID: PMC7441802
PMID: 32643586
On the potential role of exosomes in the COVID-19 reinfection/reactivation opportunity
Fatma Elrashdy,a Abdullah A. Aljaddawi,b Elrashdy M. Redwan,b and Vladimir N. Uverskyb,c,d
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7441802/

We propose here that one of the potential mechanisms for the relapse of the COVID-19 infection could be a cellular transport pathway associated with the release of the SARS-CoV-2-loaded exosomes and other extracellular vesicles. It is possible that this "Trojan horse" strategy represents possible explanation for the re-appearance of the viral RNA in the recovered COVID-19 patients 7–14 day post discharge, suggesting that viral material was hidden within such exosomes or extracellular vesicles during this "silence" time period and then started to re-spread again.

Lastly, the Company continues to pursue its clinical and other endeavors around the role (and ultimate elimination) of exosomes in cancer metastasis. Those endeavors include a recent $3.5 million NIH, grant for studies in head and neck cancer that will be a *"collaborative project between Aethlon and the UPMC Hillman Cancer Center at the University of Pittsburgh"*. We expect to see additional positive data points regarding their cancer/exosome efforts going forward.

To summarize, we have grown accustomed to the volatility of AEMD shares. That does not mean we understand the volatility, it just means we have grown accustomed to it. Put another way, nothing surprises us anymore. Frankly, when the stock sold off following the last earnings release on August 11 (2020), which again included the "uneventful to date" comment regarding their compassionate use Covid19 patient, we felt like it would likely finds its way back over $2.00 in short order. It has not. In the meantime, as we noted above, we feel like some of the things we have learned about Covid19 along the way, the correlation between viral load and poor outcomes, as well as emerging studies on the role of exosomes in viral infection, further speak to the potential for Hemopurifier to be a viable front line defense against Covid19 and perhaps any/all glycosylated viruses.

Projected Operating Model

(Actual) 6/30/2020	(Estimate) 9/30/2020	(Estimate) 12/31/2020	(Estimate) 3/31/2021	(Estimate) Fiscal 2021	(Estimate) Fiscal 2022
$ -	$ 206,636	$ 206,636	$ 206,636	$ 619,907	$ 413,271
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ -	**$ 206,636**	**$ 206,636**	**$ 206,636**	**$ 619,907**	**$ 413,271**
$ 564,284	$ 571,055	$ 577,908	$ 825,000	$ 2,538,247	$ 3,050,000
$ 436,911	$ 442,154	$ 447,460	$ 452,829	$ 1,779,354	$ 1,866,313
$ 409,223	$ 414,134	$ 319,000	$ 319,000	$ 1,461,357	$ 1,276,000
$ -	$ -	$ -	$ -	$ -	$ -
$ 1,410,418	$ 1,427,343	$ 1,344,368	$ 1,596,829	**$ 5,778,958**	**$ 6,192,313**
$ (1,410,418)	**$ (1,220,708)**	**$ (1,137,732)**	**$ (1,390,194)**	**$(5,159,052)**	**$ (5,779,042)**
$ -	$ -	$ -	$ -	$ -	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 728	$ -	$ -	$ -	$ 728	$ -
$ -	$ -	$ -	$ -	$ -	$ -
$ 728	$ -	$ -	$ -	$ 728	$ -
$ (1,411,146)	**$ (1,220,708)**	**$ (1,137,732)**	**$ (1,390,194)**	**$(5,159,780)**	**$ (5,779,042)**
$ (863)	**$ -**	**$ -**	**$ -**	$ (863)	$ -
$ (1,410,283)	**$ (1,220,708)**	**$ (1,137,732)**	**$ (1,390,194)**	$(5,158,917)	$ (5,779,042)
$ (0.15)	**$ (0.10)**	**$ (0.09)**	**$ (0.11)**	**$ (0.46)**	**$ (0.48)**
$ (0.15)	**$ (0.10)**	**$ (0.09)**	**$ (0.11)**	**$ (0.46)**	**$ (0.48)**
9,632,977	**12,079,238**	**12,091,317**	**12,103,409**	**12,091,321**	**12,139,759**
9,632,977	**12,079,238**	**12,091,317**	**12,103,409**	**12,091,321**	**12,139,759**

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Portions of this publication excerpted from company filings or other sources are noted in *italics* and referenced throughout the report.

Rating System Overview:

There are no letters in the rating system (Buy, Sell Hold), only numbers. The numbers range from 1 to 10, with 1 representing 1 "investment unit" (for my performance purposes, 1 "investment unit" equals $250) and 10 representing 10 investment units or $2,500. Obviously, a rating of 10 would suggest that I favor the stock (at respective/current levels) more than a stock with a rating of 1. As a guideline, here is a suggestion on how to use the allocation system.

Our belief at Trickle is that the best way to participate in the micro-cap/small cap space is by employing a diversified strategy. In simple terms, that means you are generally best off owning a number of issues rather than just two or three. To that point, our goal is to have at least 20 companies under coverage at any point in time, so let's use that as a guideline. Hypothetically, if you think you would like to commit $25,000 to buying micro-cap stocks, that would assume an investment of $1000 per stock (using the diversification approach we just mentioned, and the 20-stock coverage list we suggested and leaving some room to add to positions around allocation upgrades. We generally start initial coverage stocks with an allocation of 4. Thus, at $1000 invested per stock and a typical starting allocation of 4, your "investment unit" would be the same $250 we used in the example above. Thus, if we initiate a stock at a 4, you might consider putting $1000 into the position ($250 * 4). If we later raise the allocation to 6, you might consider adding two additional units or $500 to the position. If we then reduce the allocation from 6 to 4 you might consider selling whatever number of shares you purchased with 2 of the original 4 investment units. Again, this is just a suggestion as to how you might be able to use the allocation system to manage your portfolio.

For those attached to more traditional rating systems (Buy, Sell, Hold) we would submit the following guidelines.

A Trickle rating of 1 thru 3 would best correspond to a "Speculative Buy" although we would caution that a rating in that range should not assume that the stock is necessarily riskier than a stock with a higher rating. It may carry a lower rating because the stock is trading closer to a price target we are unwilling to raise at that point. This by the way applies to all of our ratings.

A Trickle rating of 4 thru 6 might best (although not perfectly) correspond to a standard "Buy" rating.

A Trickle rating of 7 thru 10 would best correspond to a "Strong Buy" however, ratings at the higher end of that range would indicate something that we deem as quite extraordinary..... an "Extreme Buy" if you will. You will not see a lot of these.