

How Accurate is Rivermap's COVID-19 Symptoms Prediction

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Rivermap Research & Consulting LLC released a COVID-19 predicted symptom list on February 6, 2020 [32]. The prediction was done based on Rivermap's proprietary genome analysis algorithm and software call GENEIDO. The software converted the genome sequence data of SARS-CoV-2 to three-layer charts that illustrated their nucleotide distributions in the germ layers. The COVID-19 symptoms were generated based on the nucleotide ratios from each layer of the charts. The software runs in real time and generates output within minutes, mostly within ONE minute.

Predictions: (1) There are THREE types of COVID-19 viruses (named S1, S2 and S3). (2) Each type contains a unique list of symptoms as shown in the Table 1. (3) People may be able to contract more than one virus. (4) The viruses can attack multiple organs including lung, kidney, liver, heart, spleen, pancreas, brain, and Central Nervous System (CNS). (5) The viruses may weaken tendons and muscles and may lead to paralysis (some maybe temporary). (6) The viruses can also weaken immunity. (7) The viruses may be self-restraint so that the symptoms may disappear without treatment. (8) Some patients may be asymptomatic. (9) If one is contracted with all three types, he/she may be asymptomatic until the viruses grow to a critical number, the patient may collapse and die due to one or multiple organs failure. (10) The viruses can cause miscarriage in pregnant women

Result: On April 10, 2020, GENEIDO showed that among all the SARS-CoV-2 genome sequence submissions in GENBANK, there are 58% of S1, 28.8% of S2 and 13.2% of S3. On May 24, the percentages of the predicted symptoms that had been reported by various sources around the world for S1 is 100%; S2 is 100% and S3 is 91.7%. No report on endocarditis. No report can be found on patients contracted with THREE types of coronaviruses. However, all symptoms were being reported separately. Please see Table 1 and 2.

Discussion: Table 1 and 2 below suggest that Rivermap's COVID-19 symptoms prediction is close to 100% accuracy. There is no report on endocarditis or inflammation of heart endocardium related to COVID-19. However, we do see reports showing myocarditis symptoms with night sweat and we know that night sweat is one of the key differentiators of myocarditis and endocarditis. Both Rivermap and the team in Cambridge led by Dr Forster [28] discovered three types of coronaviruses viruses coexist even our approaches are quite different. We believe this information is important for the vaccine and drug vendors. Last, any medical professionals can predict the symptoms based on the three-layer chart output by the software just like cardiologists can predict heart conditions based on ECGs. We welcome our colleagues in the field to do more testing with us.

Symptoms Predicted	Reported By
S1 type	
1. Fever	[1] [2]
2. Chill and shivering	[1], [3], [4], [5]
3. Rash and/or bleeding underneath skin (e.g. rosy spots)	[2], [5], [6], [7]
4. Lung edema	[8]
5. Kidney damage	[3], [5]
6. miscarriage	[10]
7. Spleen and/or pancreatic failure	[11], [12]
8. Decrease in CNS & brain functions	[1], [13], [3]
9. Flaccid paralysis (may be temporary)	[2], [14]
10. Muscle and joint pain	[15], [4]
11. Increase in RBC	[16]
12. Unstable WBC	[4], [17]
13. Shortness of breath	[1], [2], [5]
14. Headache	[13]
15. Less or no diarrhea	[5]
16. Myocarditis	[5], [18]
17. SHOCK in children	[5], [19]
S2 type	
1. Fever	[1], [2]
2. Rash may be seen	[2], [5]
3. Lung edema	[8]
4. Shortness of breath	[1], [2], [5]
5. Muscle weakness may lead to paralysis	[2], [14]

6. Decrease in WBC	[4], [17]
7. Kidney damage	[5]
8. miscarriage	[10]
9. Decrease in CNS & brain functions	[1], [13]
10. Liver failure	[5], [20]
11. Spleen and/or Pancreatic damage	[11], [12]
12. Unstable blood pressure	[5], [21]
13. Diarrhea	[5]
14. Cough with phlegm	[5], [22]
S3 type	
1. Low or no fever, more likely to have chill and shivering	[1], [3], [4], [5]
2. Inner lining necrosis, lesion, dehydration of lung, respiratory & digestive tracts	[5], [23], [24]
3. Flaccid paralysis (may be temporary)	[2], [14]
4. Liver damage	[5], [20]
1. Endocarditis	Not counted. No report.
2. Loss of hair	[25]
5. Shortness of breath	[1], [2], [5]
6. Sweating	[3]
7. Cough with or without phlegm	[5], [22]
8. Pus could be found later in Lung	[26]
9. SHOCK	[5], [8]
10. Unstable blood pressure	[5], [21]
11. Diarrhea	[5]

12. Headache	[13]
S1+S2+S3 Key symptom prediction:	
1. Chill, some may have fever and chill	[1], [3], [4]
2. Extreme fatigue	[1], [2]
3. Shortness of breath	[1], [2], [5]
4. Pneumonia symptoms (cough with phlegm), pus	[26]
5. Diarrhea	[5]
6. Miscarriage	[10]
7. Some patients may be asymptomatic	[5]
8. When the viruses reach a critical number, the patient may suddenly <ul style="list-style-type: none"> • faint due to brain/CNS failure • become paralyzed due to tendon and muscle failure • collapse and die due to one or more organ failure (brain, liver, muscle, tendon, kidney) 	[2], [27]

Table 1

S1 Symptoms Prediction Accuracy: 17/17 = 100%

S2 Symptoms Prediction Accuracy: 14/14 = 100%

S3 Symptoms Prediction Accuracy: 11/12 = 91.7%; no report on inflammation of endocardium

S1+S2+S3 Symptoms Prediction Accuracy: No report can be found on patients contracted with THREE types of coronaviruses. However, all symptoms were being reported separately (i.e. 8/8).

General Prediction	Field Reports
1. There are THREE types COVID-19 viruses out there	[28]
2. Symptoms may disappear without treatment	[29]
3. Patients can be infected with more than 1 virus strain	[30]
4. COVID-19 patients could be asymptomatic	[5], [31]

Table 2

General Prediction Accuracy: $4/4 = 100\%$

End of Article

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