A New "Non-Epidemiological" Model of the Covid19 Pandemic - Based on Potential Infection Ceilings [Maximum Number of Infected Persons] and Blocks - Taking into Account the Results of Simple Calculations of Virus Multiplication as Well as Infection and Infectiveness of Persons. Part IV Addendum- Theoretical, Practical and Near-to Epidemiological Remarks; What Happens Next with a Pandemic? Comments on Pandemic in Different Countries and Areas of the World. Final Reflections

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Abstract

Part IV

Part IV consists three parts: I-addendum-theory; II-addendum-quasi epidemiological and general comments and III: what happens next with a pandemic? Comments on pandemic in different countries and areas of the world. Final reflections.

Part I contains reflection on the destruction of viruses[mostly those bound to the blocking sites] but also the description of pandemic's parameters in terms of theory of sets. Part II discusses-among others- questions 1] can people who are infected, but asymptomatic, be infectious? 2] can a recovered person infect someone? 3] why tests should be done absolutely randomly? Part III discusses briefly: a/what approaches should be used b/where [in which countries] the situation is especially dramatic and why[it is just the beginning of serious discussion and studies to be done elsewhere] c/how probably the pandemic picture will be changing to its end.

Keywords: Covid19 Pandemic; Potential Infection Ceilings; Virus Multiplication

Addendum I-theory

Four things remain here:

1. The destruction of viruses associated with the serum ACE2 and with erythrocytes carries some autoimmune features, unless our immune system simultaneously causes relaxation or even breaking of weak bonds [because viruses are bound by weak - in a chemical sense - bonds] of the virus binding domain/s [in spikes] with "elements of the block".

2. The question arises if viruses bound can gradually be released or what is the lifetime [possibly dissociation constant either] of "virus-binding element complexes"? I assumed that these are complexes with a very high stability, and therefore with a very high affinity [such as the so-called tightly bound inhibitors for enzymes. But of course some very negligible percentage of such viruses might be liberated.

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3. I'm just signaling here, the block might be recovering as new red cells are being formed all the time; ACE2 half life is rather short [less than one day] but in fact we do not know what processes [ROS attack, proteolysis] destroy ACE2, which one [cytoplasmic, membrane bound, serum ACE2] and where; in what cells and outside them. Also the shedding of ACE2 from cell membranes proceeds all the time so does the expression of ACE2 gene on the levels of transcription, translation, trafficking [and shedding]. And we don't know how many of these molecules, possibly not fully modified, is stored in the cytoplasm and in what cells [maybe stem cells or not yet fully developed epithelial cells]. All these elements can affect the scope and speed or renewal of the ACE2 pool in the plasma [additionally lowered by -to some extent autoimmune- destruction of its complexes with the virus].

4. There is a possibility that the complete proteolysis of the virus-ACE2 and virus-erythrocyte membrane complexes may take place in the liver, including, to a large extent, the reticuloendothelial system.

From point of view of formal logic and theory of sets [79] the relationships we are interested in could be written as follows:

I ⊂ I; A ⊂ I; S ⊂ I; A ⊂ A; S ⊂ S; ⊂ S; D[and] D ⊂ S

----but even D[and D ⊂ Sser although I am pretty sure that in an official statistical reports $D \backslash S = \{x: (x \in D) \wedge (x \notin S)\}$

and more:

Inf ⊂ I; Inf ⊂ Inf; REC ⊂ I; REC ⊂ I; U ⊂ S; SS ⊂ S but unfortunately:

A\S; U\A; SS\A; REC\S although REC ⊂ A; AS\I [!!!] and

AS\Inf

Where X ⊂ Y means that every person from set X belongs to the set Y [for instance every sick with Covid19 should be first infected with SARSCoV-2 ie S ⊂ I] as to the mark W\Q it means we have a set composed of those elements that belong to the set W and do not belong to the set Q [for instance we do not know if everybody producing specific antibodies was sick before or -better example- AS\ Inf if asymptomatic might be infectious.

Addendum II-Practical and near-to epidemiological remarks

Some important questions

There is a question: can people who are infected, but asymptomatic, be infectious. My assumption is that people with more than 4,000 viruses in the body can infect; asymptomatic is the infected, but not [yet?] the sick person. According to my earlier assumptions if the number of viruses in their body V is: 200 < V < 4000, no one of them can infect, but if V is: 4000 < V < 40000 so they are asymptomatic[not even mildly sick]but might be infectious. However we should take in mind that it is only about 3% of infected people are infectious [Table 3]. We should also remember that [see earlier text] a] that it is actually almost impossible for an infected person to have in a whole body only 4,000 viruses and b] that only 40000 viruses is enough to cause real, still a very mild, disease. Then look at the limits of 20000 viruses for being infectious and 300000 to be evidently sick.

Then in the situation V is: 20000 < V < 300000 such people might be certainly infectious and still not yet clearly ill [so some might call them asymptomatic?]. But still the percentage of such people is negligible.

Can a recovered person infect someone? This question may be considered shocking. But in fact it depends on strict definitions of who is a „healer"/recovered and who is an infectious person. In a strict sense, only one who had been ill before can be healed, but why was he

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recovering? Because he was producing specific anti-SARS CoV-2 antibodies, but maybe not all viruses have been completely wiped out yet. Let's say he had 3 million of them [„at the peak of the disease"], our adapted immunological system destroyed 2.5 million, but he still has 500,000 viruses and can infect up to 125 people [for example at a wedding], well, with stricter infectivity criteria - „only" 25. Thus it would be quite likely that some vaccinated people might be apparently infected after an inoculation-ie the test result appeared to be positive.

Well it seems it is pretty obvious who is infected. She/he just took somehow an infectious dose of viruses. In case of my calculations I assumed 200, but for sure 2000 [or even more] viruses-I ssuggest more than 3200 [so called I]. Statistical reports don't hint amount of viruses although there is talk of a so-called "viral load". Although it is said about the so-called „virus titer"; I have nowhere found the results of the determinations how many of them were in the blood. The reported number of infected people is just the number of people who were positive in the genetic test for the presence of the virus it is not stated how many viruses, e.g. per gram of infectious material [e.g. within the swab].

And my calculations from the Hill equation] assume that „I seem to be like one who knows everything", i.e. as if the tests were done on every person in Poland [it would be impossible and not recommended, although, for example, in Monaco or San Marino, tests were performed on 3/4 and even more of the entire population; note 03.12: in some Arab countries like Quatar and United Emirates the numer of tests already exceeded the numer of all habitants]. How then can my counts of the number of infected be compared with the statistics?

But if the tests were done absolutely randomly, the results in % or % would be comparable; but they certainly were not made that way. Certainly, they were made mainly for people who either had some symptoms, e.g. increased fever [e.g. 37.6 degrees C] or came from China and then from Italy, stayed with an infected, undoubtedly sick person, or were to finish quarantine or take responsible work with other people. Therefore, my results for the number of sick people [even mildly but better distinctly]-instead all so called infected- would be more similar to the number of infected people given in the statistical reports.

Overall, therefore, the number of negative tests reported in the statistics do not reliably tell about the total [nationwide] number of people who are not infected, i.e. those who will either never become infected or have not yet become infected. In addition, the tests were and are being carried out gradually: first there were few tests, then [under certain pressures] more and more - so I think later data - say after 3 - 4 months of the pandemic are more credible as a measure of the development of a pandemic.Well,but even then if tests are performed not randomly there they do not give us an objective picture of the pandemic.

In order for the tests to be an objective picture of the situation, but at the same time not to entail too much expenditure, it would be necessary to perform two pools of tests from the beginning of the pandemic.One would be the tests [maybe all tests should be antigenic rather than genetic] performed „as needed", and thus by nature with a relatively large percentage of people having even mild symptoms of „disease". The second pool should be tests performed on randomly collected cases from the entire population [including young children] - as sociological rankings are performed, eg for public opinion polls [on important matters]. If such tests could not be made compulsory, the only option would be for the State to pay the persons undergoing the tests [or their families].

You can have the biggest reservations about the definition, and therefore also about the number of recovered people or the so-called "active cases" [the latter will be discussed later on]. If recovered are those who have been examined by the doctors and seem asymptomatic? Were indeed they at all ill before and was it Covid 19, and not just the so-called accompanying diseases? Or were they just found to have specific IgG anti-SARS CoV-2 immunoglobulins? And if so, how many? And did they inactivate all viruses? And whether the presence of viruses in the blood was examined or only in the „usual contagious space" from which the swab was taken.

In my opinion, that which could be called the healers first had to have been ill on Covid19, currently they should not contain "live" viruses [I use quotation marks because the virus is not alive and therefore cannot be killed], they should not have viruses [in the blood], and should have a high anti-SARS CoV-2 IgG titer.

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Mind you, the importance of the number of people infected is clearly overstated. Look: 1/the genetic test RT-RT-PCR for viral RNA are so terribly sensitive, that in fact almost everybody might be "positive" [it might be the tests for viral antigenes could be more credible].

As for the comparisons [and generally the comparability] of my calculations with the statistical data, it is a serious problem here. It would be necessary to agree first on the definitions of who is infected, asymptomatic, mildly ill, clearly ill, seriously ill, healed/recovered.

My calculation methodology does not allow for a direct refering to the dynamics of increases and decreases in the so-called positive and negative tests for Corona virus.

The difference [besides another attitude and logistic I discussed earlier] is that in statistics from number of infected persons["total cases"] number of recovered and died is substracted; in this nomenclature "passive cases" mean [?] recovered plus...dead. Speaking arithmetically in this official calculation of epidemiologists the minuend is badly chosen versus subtrahend. This gives too big amount of active cases -in my opinion number of recovered [properly established] should be substracted from the number of ill [at least mildly]. But if the amount of people recognized as convalescents was incorrectly overpriced then the calculated amount of "active cases might be understated.

Generally speaking, almost is not doubtful who is infected and who..is dead [in this case the doubtful is the cause-effect relationship of death and Covid19]. On the other hand, doubts may be who to be classified [*ergo* how many are] to convalescents, whom to be infectious, and especially just to the sick.

Also i don't know what were the criteria for so called "serious cases and fatal". They are anyway low [even in my calculations] but reported data on number of such cases not just in Poland [for many countries] are incredibly short:?? less than death cases,which is highly incredible.

The pandemic would not end, at least for the most vulnerable oldest group [I; > 65 years old], in the day/week where the number of sick was equal the number of producers of IgG. Because still, although slowly the number of people sick would increase and first of all still would be more and more cases of death [in my calculations as not the detachable result/s of attacking/damaging the target cells with viruses]. Most probably [Figure 3-6] the new cases of virus-related death will happen yet another 1 - 3 months after almost complete lack of new cases of illness and let alone those infected.

As I discussed just a bit earlier in fact -in my opinion-every susceptible person [and this is 15% of population, ie 5,6 million from 38,4 million in Poland] was infected, then immediately entered the block, but after some time might be infected ["fortified in the infection"] once again.

Well, epidemiologists believe that only the infection of 2/3 of the population causes the development of „herd immunity". But in case of postulated by me first infection and straightaway entering the block there might be not formation of specific adapted resistance [as I discussed earlier].

What happens next with a pandemic? Comments on pandemic in different countries and areas of the world. Final reflection

What general recommendations would I propose:

1. The number of tests should be increased, but faster and cheaper, not as sensitive as tests for virus RNA [maybe antigenic].

2. I'm not talking about tests on own wish - and moreover: that the tests should be obligatory for all people over 70 years of age, for all teachers, educators, trainers, physiotherapists, doctors, pharmacists, cashiers in large stores, taxi drivers, drivers carrying

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people and aircraft operators/crew, journalists, clergy, actors, players in professional and semi-professional sports disciplines.

3. It is necessary to isolate the infected as much as possible, but also during treatment and „recovering" [this should especially apply to the initial period of the pandemic, and unfortunately it was not the case; indeed, !!! it is obligatory to scrupulously search for „persons zero"/and generally the earliest infected and evidently ill and efficiently isolate them]

4. Instead of - apart from - quarantine, which should be used in exceptional cases, there should be scrupulous testing of all those who return from abroad and lived or worked with a person who had a positive test result [of course, especially when it was accompanied by evident symptoms of a progressive disease]; a negative quarantine test result should not be used.

5. As for the assessment of a global pandemic - assuming that the data are reliable and adopting established definitions: A. the situation in countries where the statistical records of number of healed/recovered people are less than the number of the so-called active cases [X], and even when it is less than 150% active cases [Y]. This means that the number of people healed is less than 50 - 60% of the total [since the beginning of the pandemic] number of infected people minus the number of deaths. Such a situation is: [X] in France, Greece, Belgium, Romania and...Ukraine, as well as in many countries of Africa [Etiiopia, Congo, Angola] and Central America [Antilles]; but considering [Y] also mainly in the USA, but also Albania, Slovakia, several countries of South America [Bolivia, Paraguay], and Africa [Kenya, Sudan, Uganda]; in Asia this is the case only in Lebanon, Syria, Nepal and Myanmar [Burma] [this part of text was written about 5.09.2020].

In my opinion - I omit here the obvious greatest danger in huge urban agglomerations [Moscow, Madrid, London, Paris, New York, Los Angeles, etc.] this proves that some races and nationalities have an evidently smaller % of functional SARSCoV-2 receptors [here we should mention especially the inhabitants of Indochina - but generally so called yellow race], but also the Slavs, the inhabitants of India [anyway!], and Indonesia, although in the representatives of the so called black race is not the worst situation; the biggest % of functional receptors seem to be characteristic for people of Germanic origin, but especially Romanes. Look, in India [more than 1200 million inhabitants] there is about 10,85 million infected and in USA more than 27 million of cases per just about 300 million habitants. Look on % of infection in USA and Mexico [Indians and mestizos - so formally the "yellow race" -as dominating part of population of Mexico], look at differences between Belgium and Netherlands [it would be interesting to check what are the differences of the number -in %- of infection between the southern Belgium [French speaking Walloons] and northern Belgium [Flemish people, so almost exactly like in the Netherlands].

It can't be excluded that apart the lower/bigger % of functional viral receptors [including TMPRSS2] the bigger/lower average level of blocking elements [so serum ACE2, so sheddase ADAM17 activity] really matter. Some polymorphisms in the genome may be the reason for such differences; although some differences can be found in the profile of blocking the expression of certain genes during embryonic and fetal development, also the epigenetic [or even nutriepigenetic] effect on blocking and unblocking genes may play a significant role.

Other important reasons for the low [sometimes very low] number of infected - as can be seen from my models and calculations are:

1. Proportions of different age groups favoring lower infectivity, i.e. not 25%, but even 50% of the total population are people under 25 years old.

2. Large-much greater than 10% [as I assumed for Poland], maybe even more than 50% of the total, the percentage of people who practically live far apart [far from each other - [assuming that there is no contact with „specimen zero" yet] Mongolia, Siberia, Vietnam, Indonesia, many countries in Africa, Asia, America.

And here we come to the reasons why in some countries [Amazon region in Brazil, a large part of Africa, the Antilles, the Philippines, islands in the Pacific] there is evidently a delayed development of a pandemic and a wave of infections [and thus death, which eliminates

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mainly people who already have accompanying diseases, old and weakened, maybe malnourished or „poorly fed"-e.g. deficits of zinc and niacin [80], vitamin D [81] or resveratrol [82]]. Well, the main cause may be „confusion" increased frequency of contacts - that part of the entire population that so far lived „far from each other" eg. in jungles or on the shores of the ocean [fishermen] - I emphasize no one living among them was infected - with people who lived so far in „a cloud of human breaths and viruses". Maybe it was due to tourists, or maybe due to the increased frequency of contacts with a distant relatives in a big city, or the necessity of bigger purchases once a half of year or forced necessity of surgery in far big city hospital.

And here about the further development of the pandemic. Of course, I am not talking about possible treatment, or about the influence of administrative orders, quarantines and lowering the average distance between people. Simply at some point there will be more people who have produced a sufficient amount of specific anti-SARS CoV-2 antibodies than people clearly sick.

There will be more and more deaths, many of them will be shocking, because they will affect very young people and even small children, because it can be assumed that the total level of functional corona virus receptors I took was underestimated as there are still quite a few unsaturated such receptors in the intestines and in brain. Then we will no longer talk only about droplet infection and there will be a lot of infections through blood, feces, urine, and sperm.

There may also be a lot of immune deficits acquired either due to the attack of viruses on the spleen, and perhaps even on the bone marrow, or due to the autoimmune forms of „virus-human combat" [compare earlier text: part II].

I believe that one should get vaccinated regardless of whether:

1. We were/are infected [and sick] - including possibly the second time - or not.

2. Regardless of whether we already produce anti-SARSCoV-2 antibodies or not, and even whether [after passing Covid19 or not] we produced theoretically/practically so many antibodies that we „destroyed" viruses „on our own".

3. Regardless of whether or not we are susceptible to the virus, i.e. even if we do not have functional SARSCV-2 receptors [or we have their minimum level]. It is always useful to acquire resistance or additional resistance.

However, it should be remembered that even a vaccinated person can become infected, especially when in contact with a very large dose of viruses [as e.g. contact with a person dying from Covid19] the further his/her fate depends on the dynamics of antibody biosynthesis in our organism-induced by viral RNA or actually on the results of collisions of „two dynamics": viral multiplication, eg in the intestines/nervous system, and viral multiplication.

I do not know whether vaccines based on viral protein antigens will work identically to those based on the mRNA technique. But certainly you should definitely not take different vaccines at the first and second vaccinations. In general, we do not yet know exactly whether antibodies act only on free viruses or on virus-membrane [functional] receptor complexes, in which case it may have some features [negative] of autoimmune processes.

As for the new wave of infections, it could be:

1. Infections of this 10%-in Poland-[in some areas of world even more than 50%] subpopulation, which so far lived far from each other [-e.g. in Poland in Masurian Lakes, in Bory Tucholskie Forests, in the Bieszczady Mountains-and so on- in an analogy to Amazon area]; so it will be either one larger wave [but actually 10 times less numerous than the „current" one] or several even smaller.

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2. Infections from people who came from abroad.

3. Large part of these new infections may be/are repeated infections, or rather the "infection of infected persons" with a larger infectious dose [a larger portion of viruses] of people who were already infected, but the current amount of viruses in their body was very small, e.g. below 4000.

New infections may also be likely due to the fact that a] people who became infected did not develop specific immunity during the block phase and b] even in people „after a block, not all people - among those susceptible - will produce specific anti-SARSCoV-2 IgG [i.e. only 50% - in any case more than 80%-of those susceptible will produce-in the final period of current wave of pandemic - enough such antibodies - see my calculations]).

Public opinion in Poland and around the world has been recently [period from15/ 09 to 15/11/2020] quite shocked by the increase in the number of „new infections" and cases of mild and serious diseases, atypical symptoms and deaths, including children.

Many talk about a new wave of the pandemic. Well [text from February 2021] such a second wave had appeared and even the third one. But in my opinion, and in fact according to the whole model presented by me [and the whole set of thoughts and calculations related to it] big part of data came not necessarily from a new wave, but simply inevitable delayed disclosure of the facts [their infiltration into the public eye]. Please just follow my text, I predicted that practically all susceptible individuals will become infected [or have already become infected] but have so few viruses that even tests may have been negative despite their sensitivity.

 It should be assumed that a similar interpretation of events should be adopted for the whole world, especially the numerous areas where there are clearly outstanding outbreaks of a pandemic.

Main Conclusions/Comments

- The second pool of tests should be tests performed on randomly collected cases from the entire population [including young children] - as sociological rankings, eg for public opinion polls If such tests could not be made compulsory, the only option would be for the State to pay the persons undergoing the tests [or their families].

- Instead of - apart from - quarantine, which should be used in exceptional cases, there should be scrupulous testing of all those who return from abroad.

- The radical isolation of the "person zero"-and-all long-ago infected persons - is a basic condition for limiting the pandemic; however it looks like all restrictions cause only delay of pandemic.

- Some races and nationalities seem to have an evidently smaller % of functional SARSCoV-2 receptors [especially the inhabitants of Indochina - but generally so called yellow race, but also the Slavs, the inhabitants of India -anyway- and Indonesia], the biggest % of functional receptors seem to be characteristic for people of Germanic origin, but especially Romanes.

- Probably the survival of a block-i.e. "alleviated pandemic"[quoting is because usually word "pandemic" concerns all the population not the single person] - does not result to develop immunity to reinfection, or such an immunity concerns only for small fraction of susceptible infected people.

Note: Data from textbooks on biochemistry and other biomedical fields as well as statistical data [and opinions in the media] are not included in the published references in all this paper.

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