Flaws in Medicine Must Be Corrected: An Open Report to National Governments Amid the Pandemic

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INTRODUCTION

Nearly all chronic diseases are still considered as incurable [1]. Of the 56.9 million deaths worldwide in 2016, more than half (54%) were caused by the top 10 causes [2]. By 2020, estimated 157 million people in the U.S. have chronic diseases, with 81 mil-

lion having multiple conditions [3]. The most common chronic diseases are costing the U.S. economy more than \$1 trillion annually—and that figure threatens to reach \$5.7 trillion by the middle of the century [4]. Medicine fails in treating infectious diseases as well. By May 26, COVID-19 has infected 5,646,051 people, resulting in 350,121 deaths in the world while the virus infected 1.72 million people in the U.S. with 100,269 deaths [5]. There is no cure for the disease.

In 2001, author, Dr. Wu discovered that medicine was established on a flawed foundation when the author studied common law development history. Even though he had tried to bring this critical issue to the light of day, he did not get any response, nor support. After 2017, we started doing self-funded research and disclosed several articles that prove four key presumptions in medicine (as well as many other practices and theories) were incorrect. Our findings provided a brief chance for society to address a civilization catastrophe like the COVID-19, traditional medical publishers refused to review our articles. Our experience in dealing with the medical publishers caused us to investigate their practices, and found that their publishing practices are mainly responsible for the catastrophic medical landscape.

We will examine their business model, their article-selecting practice, peer review practice, promotional activities, and the pool of medical articles as the primary evidence. Specifically, we try to find how they provide incentives for maintaining obsolete medical theories, concepts, practices and treatment options, and

how they discouraged disruptive medical discoveries, and suppressed our discoveries challenging old medical theories and practices. We then assess the validity of the medical evidence they have produced and relied on by society.

We will also try to understand how governments, academics, foundations, societies, non-profit organizations, etc. rely on the pool of medical evidence produced by the medical publishers, why societies have relied on their articles as the sole medical evidence in legislature, and why governments and health organizations use them as exclusive evidence. Finally, we will show why there are no predictable cures for chronic diseases, cancer and infection diseases like COVID-19, and what must be done to end the present COVID-19 catastrophe and prevent future civilization catastrophes. Our findings from our continuous research will be disclosed on www.igoosa.com or our future website for Healthier World.

EVIDENCE ANALYSIS

A. Medicine on a Flawed Foundation

We will summarily prove that four core presumptions: population approach, dualism, reductionism, and two-value disease

classification are wrong or introduce too many big errors to make treatments invalid. However, those presumptions are not improper if they are used to understand health mechanisms, but are wrong whenever they are used as the basis of forming treatment protocols.

1. Misuse of randomized controlled trials in medical studies

Population-based research method has been considered as the crown jewel of medicine. However, the method introduces three kinds of errors: indiscriminate application of treatments, inability to address interfering factors, and bundling interfering factors into the error term to raise its variances [6]. The method introduces far too many and too big errors. Based on our mathematical model, multiple factor health optimization trials are far superior to randomized controlled trials by tens to thousands times, depending on the number of factors [6]. This single flaw is a sufficient reason to reject most treatment methods developed by using randomized controlled trials. See proof [A1].

2. Dualism has long been refuted in every major medical field of study by thousands of published articles

Mind is an essential component for curing chronic diseases. If any aspect of the body changes, mind, which may be viewed as neuronal signals activities in the Central Nervous System, changes in response to the body change. In response to changes in the body, neural signals from the brain for regulating the body are changed (see internally cited articles [7]). To cure a disease,

both parts must be changed at the same time. A treatment model without including mind is like altering shoe sizes without considering the feet. By focusing only on the body part, diseases are cured only by accident. Tens of thousands of studies concerning mind, emotion, chronic stress, etc. conclusively prove this model assumption is wrong. The same conclusion is found in specialized medical fields such as cancer, HIV, wound healing, heart disease, and influenza. See proof [A2].

3. A reductionist treatment model

The reductionist model also independently makes treatment methods fail. Reduction is possible for simple physical devices. Even for a moderate complex system, repairing by focusing on one thing is not possible. There are more than 100 biochemical pathways and more than 25,000 genes [8, 9]. The total transcripts are from 154,484 to 328,827. For any chronic disease such as heart disease, cancer, infection, and autoimmune disease, tens to thousands of factors affect disease outcomes [6, 7, 10]. Any attempt to fix a disease by using one single drug to alter one step of more than a hundred processes is an unrealistic over-simplified method. If we view the human body as car rather than a chemical reactor, optimal performance cannot be achieved by adjusting one component in the car, but must fix many parts that could be wrong. Exceptions are certain conditions that are caused by foreign objects. The reductionist treatment model has failed in the entire history of medicine in treating chronic disease. When this reductionist method is used to evaluate surgery and chemother-

apy, it grossly exaggerates drug performance in treating cancer [12]. COVID-19 disease can be influenced by hundreds of factors that affect viral activities, immune responses, and waste removal efficiency [13, 14]. See further proof [A3].

Randomized clinical trial is actually a reductionist population trial. Whenever a measured property is a health property or disease property, the researchers actually add up measured values for all persons in each treatment and get an average for the population. This method is not unworkable even if it is used in car repairs. While any of the mechanical properties of cars can be added across different makes and models, the sum and average cannot be used to fix mechanical problems of any car. In each car, all properties such as coolant flow rate, fuel injection rate, fuel pressure, engine temperature, fan capacity, engine oil pressure, etc. are integrated in the system.

One obvious reason is that the absolute value of each property in a car is not important, but what is important is how it is relative to values of other properties. Every property is constrained by others in process chains. Coolant flow rate is related to the engine heat-generating rate and the cooling system ability to dissipate heat. Fuel injection flow rate depends on fuel pressure, fuel type, and engine power, etc. Each property must precisely match all relevant properties in the car. Each component is constrained by other components. This required match between components arises from capacity requirement, space requirement, process speed balance, material conversion rate balance,

waste removal rate balance, etc. Absolute value of any property is not important because the whole system can be scaled up and down without causing any problem. None of them can be freely changed without changing others. Each system's attribute cannot be treated as crop yield or production yield of a chemical reactor.

Adding up measured values of any property from different cars can get a mean value, but the mean cannot be applied to any car unless the car is re-designed. Population approach may be used to determine product yields, but cannot be used to study complex process network. If the population method is used to fix planes, every plane could crash. We expect that car is much simpler than the human body. We anticipate that the balance in human body is much sophisticated with less tolerance. We must infer that the population mean of any health property is not necessarily better than the correspondent value for a specific person, a treatment based on the best population outcome is generally not the best for a specific person, and negative results of a treatment is not necessarily bad for a specific patient. That is why population-based treatments cannot cure diseases and most conclusions in controlled trial studies require different interpretations.

4. The two-value disease classification

The two-value disease classification can be traced to concept originated in common law courts, but not a part of nature. The health condition of a person depends on a large number of factors, each of which makes a small amount of contributions to holistic health and diseases. Each of a large number of health

properties can have $\pm 50\%$ variations (reflected in the reference ranges of human laboratory data). However, we have shown that chronic diseases were developed over years to several decades and a disease is often a result of less than one percent of departure from the values for maintaining required balances [6, A5]; Severe lung damages may be caused by 0.1% over accumulation of white blood cells in the lungs [14]. A disease occurs whenever small imbalances happen. The two-value system introduces additional errors and inaccuracies. See additional proof [A4].

When a two-value system is used to model a health property, the system naturally introduces excessive errors. It can introduce 50% or more, depending on the quantitative point for changing between the two values. A deviation of $\pm (10\%-50\%)$ could be considered normal under the two-value scale (e.g., an organ function, even when 50% of organ function is lost, the person still has no sign of disease), but $\pm 0.1\%$ departures from the ideal values for a long time may cause a chronic disease. The introduced errors may be larger than disease-causing departures by 50-500 times. Such research findings look great, but cannot enable doctors to cure diseases.

When public intervention measures are attempted on two values, such measures naturally fail [15, 16]. An extinguished COVID-19 pandemic can be revived by an infected person not diagnosed, or virus transmitted by infected persons without symptoms, or virus carried by animals or chronic viral carriers, etc. When up to 25 % people may carry the virus without symp-

toms, and almost 30% test results would be false, any attempt to extinguish the virus is a delusion. Medicine has not recognized the importance of mitigating disease severity, improve population immunity, and raise personal resistance to the virus [16].

5. Research model exaggerates drug performance

While some drugs can have magic role in fighting infection and acute diseases, their true benefits and side effects are not correctly determined due to methodological flaws. Randomized controlled trials are good at determining strong effects but are incapable of determining side effects realized on a long term. Moreover, research methods used in evaluating drug side effects use a special two-value scale: when the drug side effect is not observed, it is assigned as no (a zero value), when a side effect is found, it is assigned by different grades (e.g., one to four levels) [17-18]. Human organs have great functional redundancy. The threshold of disability is much lower than the reserve capacity [10]. If a drug has just reduced 50% of an organ function, its side effect may not get attention.

Drug side effects that reduce major organ function will not be seen or felt until the drug has decreased their function to near the disability level. This is why most drug side effects are not known in clinical trials but are found after marketing. Unfortunately, post-marketing surveillance is ineffective [19]. In cancer cases, most serious side effects of cancer treatments were not known until a serious study found that the treatments shortened survivors' lives by as much as 30% from suffering accelerated

aging-like damages [20, 21]. For those reasons, we found that surgery and chemotherapy actually shorten lives in most cases [12].

6. An implied assumption that health/disease properties are transferable

The population approach often depends on use of mathematical operations [22, 23], which imply that health properties are transferable. This assumption implies that disease from person A is same as disease of person B and curing X% a population is treated as same regardless of who are actually cured. The basic reproductive number, R_0 , is actually a mathematically determined value. Examining mathematical operations, we see that health properties are transferable from person to person: one infection on a person can be offset by avoiding infection on another person; and vulnerability to infection attributable to obesity is same as that attributable to a toxic heavy metal.

The transfer of infection from one person to another in a model causes different consequences to different persons. Since the model allows for swapping disease statuses and outcomes between different persons, the model must lack sensitivity for assessing validity of the personalized measures for specific persons. Thus, treatments formulated by using data mathematically derived from a population naturally fail to work on specific persons. This assumption fails if the treatments are used to treat diseases that arise from subtle imbalance in biochemical and cellular processes. The required balance is implied by the long-held

notion that diseases must be treated by using matched treatments but not randomized application of treatments. Treatments derived from population studies cannot be optimal personalized measures for correcting subtle imbalances. See numerous cases of proof [A5].

Mathematical operations of health/disease properties are not improper if they are used to eliminate measurement errors, provide ballpark estimates, predict disease courses, or provide policies supports.

Table 1. Comparisons between the Medical Model and Health Optimization Engineering (HOE) using Multiple Factors of Similar Effects

Elements	Medical Model (RCT)	Health Optimization Engineering (HOE) or Personalized Medicine	Relative Error rate/ Inaccuracy
Research Approach	Focus on one factor in a trial	Focus on multiple factors on individual person	About 100 times difference (for 10 factors): Due to effect dilution, indiscriminate application, negating effects, etc.
Dualism	Ignore mind and emotion; Treat	Include mind and emotional as part of cure	Medicine fails by certainty in dealing with chronic diseases.

	person like a chemical reactor		Central Nervous System affects the immune system and immunity
Reductionist	A treatment focuses on one step, thing or aspect	To address health as whole, including timing, phase, mechanical properties, etc.	(Note reduction is proper for understanding health mechanisms but may not be used to formulate treatments)
Two-value disease definition	Every research question was turned into two values: yes or no	Use all factors in a quantitative scale (rarely used)	Medical model introduces excessive errors and inaccuracies by using the two-value scale
Side effects of treatments	Acknowledge side effects only when “seeing” it:	Diets, natural products, physical conditions, exercises, etc. are safer	Failure to see lost organ function reserve; and exaggerate benefits of surgery, drugs, radiation, etc.
Health proper-	Add up and average	No need to use (curing chronic dis-	RCT dilutes true benefits by persons unre-

ties compu- tation	them	eases require time and efforts)	sponsive to the treat- ment, interfering effects of other fac- tors, and, averaging of positive and nega- tive effects
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The RCTs have limited utilities when they are used in various circumstances. However, findings converted to two-value conclusions are often inaccurate. Even though the data without the layer of statistical analysis are useful, their conclusions cannot be applied to individual persons. Treatments based on a dualism model cannot cure diseases except by accident; treatments using limited factors developed by the reductionist model cannot predictably cure chronic diseases except by accident. The two-value scale together with the flawed randomized controlled trials cannot recognize each of a large number of weak causal factors but hide most side effects of synthetic drugs. They collectively turn medicine into an art that can control symptoms, stop pains and make patients comfortable. While some drugs can shorten infection duration, their side effects are underestimated systematically.

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Evidence Appendices

A1. Randomized Control Trial Problems

Figure 1 shows that randomized controlled trial is inferior to health optimization trial involving multiple factors.

The top insert (a) in Figure 1 shows basic model data with different means and standard errors (or correspondent variances). The left chart in the lower insert (b) shows that a randomized controlled trial will study only one factor with all interference factors bundled into the error term. This results in huge variances of the error term which also explains massive controversial and meaningless conclusions. The right chart in the bottom insert (b) shows how a health optimization mini trial might come out. All effects of those controllable factors are added up without inflating the error term. Since model data are based on the same assumptions that are used in randomized controlled trials, an inevitable finding is that randomized controlled trial is a wrong method. The original article provides extensive mathematical proof [1]. We can find a large number of studies that also show that the RCTs do not work.

Figure A1. Comparison between population trials and optimization trials.

Our model can explain the general view that RCTs are not suitable for nutritional research [S1]. Many nutritional RCTs yield ambiguous or conflicting results. The authors in the cited study investigated whether there are fundamental limitations of the RCTs in nutritional research. Three general presuppositions are identified and discussed. The problem they discussed are very common in medical research. In nutrition, each single factor can be viewed as a weak effect. Although nutrition could be a strong factor in some situation, it is a weak factor when a

large number of other factors can interfere with any target nutrient. For those reasons, a negative finding cannot rule out true beneficial effects on some patients.

Medical model caused serious difficulties in psychiatry. Psychiatrists have responded to their crisis by embracing two ostensibly opposite positions. One would simply exclude psychiatry from the field of medicine, while the other would adhere strictly to the “medical model” and limit psychiatry’s field to behavioral disorders consequent to brain dysfunction [S2]. We see that both mental diseases and interventions can be viewed as highly variable effects that can be intervened by a large number of other interfering factors. Population trials seem unfit for this kind of research. An intervention can improve health conditions of a specific person by comparing disease before and after intervention, such an intervention can be affected by a large number of other factors so that comparison between different persons will yield a wrong result.

Progress in dialysis methods was successfully presented in case reports, case-control studies and other observational studies, but randomized controlled trials did not bring any valuable results [S3]. Comparison of the value of peritoneal dialysis and hemodialysis (HD) in RCTs was not completed because of recruitment problems. Four RCTs in HD did not provide any useful data. The worst example was the National Cooperative Dialysis Study, which committed a Type II statisti-

cal error rejecting the time of dialysis as an important factor determining the quality of dialysis.

A study showed that these world-leading RCTs that have influenced policy produce biased results. Some problems include participants' background traits are often poorly distributed between trial groups, that the trials often neglect alternative factors contributing to their main reported outcome and, among many other issues [S4]. The study identifies a number of novel and important assumptions, biases and limitations not yet thoroughly discussed in existing studies that arise when designing, implementing and analyzing trials. The authors suggested that researchers and policymakers need to become better aware of the broader set of assumptions, biases and limitations in trials. The study pointed out some limitations such as the "unique time period assessment bias", the "background traits remain constant assumption", the "average treatment effects limitation", the "simple treatment at the individual level limitation", the "all preconditions are fully met assumption", the "quantitative variable limitation" and the "placebo only or conventional treatment only limitation." The biggest problem with studying chronic disease is alternative factors affecting reported outcomes. The author found that most of the limitations have not been studied. If assumptions have not been studied, there is no basis to believe that findings from RCTs have any meanings.

RTCs also fail in a large number of studies in Radiation Oncology [S5]. The initial search in this study yielded 460 studies, from which 138 studies were included. A higher rate of RCT failure was observed in the more recent era, with rates increasing from 11% (1987-2006) to 39% (2009-2012). Poor results are anticipated because a large number of factors can affect treatment and cancer outcomes. We also believe that those trials that have not be characterized as failure may also fail for other reasons.

Our mathematical model simulation using artificial data is consistent with Krauss' conclusion "all randomised controlled trials produce biased results" as long as the trials are used to study health properties and treatment effects.

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A2. Dualism was refuted by overwhelming evidence

A body of evidence shows that emotion and stress affect disease outcomes through influencing immune system [1-10]. The role of emotion and chronic stress in cancer was discovered after 1980s [11-15]. The effects of acute and chronic psychological stress in heart attack risk were found later [16, 17]. Stress made humans susceptible to infection, and short-term stress negatively affects wound healing [18, 19], increases the pro-inflammatory response in the caretakers of Alzheimer's patients [20], and affects infectious respiratory diseases [21-23].

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A3. Proof That Reductionist Model Is Wrong

Any complex health problem can be addressed by focusing on one simple factor. Randomized controlled trials have this component. There are massive research findings and indications that can refute the reductionist notion. Some examples are:

1. The roles of surgery and chemotherapy. When each of treatment or drug is evaluated by focusing on the treatment, it is good; if the treatment is evaluated in light of many other factors, the findings are different.

2. Epidemiological models and Basic Reproduction Number, R_0 are failure. The disease severity of viral infection depends on host responses, innate immune responses, acquired immune response, other health diseases, etc. Treatment of focusing on a single factor under the reductionist thinking is poorer than a treatment of using multiple factors.

3. Most cancer theories are wrong or incomplete because each of the theories considers only one factor at a time. Hun-

dreds of factors affect cancer initiation, development and cancer outcome. Cancer cannot be cured by focusing one factor a time. Most cancer miracles are a result of using multiple treatment factors.

4. Personal medicine principle: each disease is caused by epigenetic changes, which depend on somatic mutation, aging, genomic variation, hormones parity, inflammation, microbiota condition, diet, obesity, smoking, etc. Cancer caused by bad microbiota cannot be cured by intervening only one step or one path in the biochemical reaction network.

5. Human health is maintained by a network of biochemical and cellular processes which is more complex than a car. Health condition depends on the balance in all biochemical and cellular processes. Disease is a result of lost balance among cascading biological and cellular processes. Disease cannot be cured by affecting only a single biological process. Thus, any treatment by using a single agent can only manage symptoms. This is why medicine fails to find cures for chronic diseases.

A4. The two-value system and human organ reverse

All of the following are irrational and absurd per se:

1. Common law: consideration: 1 dollar is same as one bil-

lion dollar. This method introduces great inaccuracies. If humans are expected to live only up to fifty to sixty years old, the inaccuracies are not a problem. However, if the person expects to live the longest life, the body must be maintained at optimal performance. This two-value scale becomes a limiting factor.

2. Per the two-value convention, infection of one lung cell by one single viral gene copy is regarded as same as infections of million lung cells by tens of millions of viral gene copies. This introduces an excessive error. There is no reason to assume that only one lung cell can be infected initially.

3. In clinical trials, some side effects are counted without rating their severity. If disease severity is considered by observing signs, the loss of organ reserve function attributable to drug side effects is not counted as drug side effects because there is no observable symptom.

4. There are a large number of concepts such as normal v. abnormal test results, healthy and unhealthy persons, etc. Such concepts are extensively used in clinical trials. When it introduces excessive errors, the findings from such trials may be wrong or meaningless.

A5. Diseases Are Caused by Imbalances (Health properties are not transferable)

A car repairing model. This property-non-transferable nature should be seen from the car repairing model: most mechanical properties such as coolant flow, engine power, engine speed, load capacity, etc. can be added up for cars across different makes and models, but cannot be applied to any particular car in car repairs. The obvious reason is that multiple systems including the cooling system, the exhaustion system, the combustion system, etc. must work precisely in balance. The coolant flow cannot be altered according to the population-derived average. This requirement is very similar to a human body where organ functions must be in precise balance.

Vitamin D example. The non-transferable nature of health properties can be shown in a hypothetical example. To improve vitamin D supply, its levels in blood for a sample of a population can be determined together with the mean and a standard deviation. This mean may be used to determine the total amount of Vitamin D required for correcting vitamin deficiency for the population. Since vitamin levels actually vary among persons, the amounts of supplement intakes cannot be determined on the basis of the population mean but on actual vitamin level in each person. If the same amount of vitamin supplement is indiscriminately used to all persons, the amount is insufficient to those with low vitamin levels but may intoxicate those with high vitamin levels. The health property value derived mathematically from a population cannot be used as the basis for correcting subtle imbalance.

White Blood Cells jammed in the lungs. The total volume of compressible alveolar spaces is 2000-3000 mL. Since part of it is due to lung blood volume, we use 2000 ml. The heart of an adult person pumps blood at 5 liters per min, the pulmonary flow is essentially same as the cardiac output. The total blood volume=5,000 ml/min; and total WBC volume is 50 ml (WBC make up approximately 1% of the total blood volume). Assuming that only 0.1% of the WBCs are retained for any time increment, the retained volume could be $50 \text{ ml/min} \times 0.1\% = 0.05/\text{min}$. The retention of WBCs in interstitial spaces has the same effect of reducing the volume of alveolar spaces because the total volume of the lungs is substantially fixed. In addition, fluid filled in alveolar spaces is not compressible. The WBCs will occupy about 72 ml volume in one day; and 360 ml volume in five days (36% of lungs volume). The patient may die within a few days.

Cancer cell growth model. Our numeric simulations and kinetic modeling show that cancer progression or tumor growth is a very slow process. Most naturally occurring cancers have a latent period of 5 to 70 years. Based on 5 billion cancer cell tumors, this is equivalent to an apparent rate constant of 0.0009 to 0.012, or a daily increase of 0.09% to 1.2% of new cancer cells. (The tumor has 500 million cancer cells, the apparent rate constant is 0.0008 to 0.011.). A large number of cancer self-healing and cancer miracles indicate that cancer can be reversed by altering cancer apparent rate constant on similar time scales. Cancer self-healing and cancer

miracles show that reversing cancer can be achieved 1-6 years, which are equivalent to eliminating 5 billion cancer cells with an apparent rate constant of -0.01 to -0.05.

Fat deposit model. How 1.0 mmol/L (25% departure from an optimum value) would affect health. Since glucose has a formula weight of 180.1559 g/mol, 1.0 mmol/L would have $(0.001 \text{ mol/L} \times 180.1559 \text{ g/mol} = 0.18 \text{ g/L})$ 0.18 g/L. That means that 0.18 g in each liter blood could not be used. If the person has an average heart output of 6 liters per minute (most people have 5-6 L/min), each year, the total heart output volume is $6 \times 60 \times 24 \times 365 = 3,153,600 \text{ L}$. So, the total glucose that would be available for storage as fats is $3,153,600 \text{ L} \times 0.18 \text{ g/L} = 567,648 \text{ g} = 567.648 \text{ kg}$. It is impossible because most glucose is re-circulated to the heart and cannot be stored as fats, and excessive energy will not be absorbed. Even if only 1% of the glucose is deposited in tissues, the person can gain 5.6 kg glucose (or 2.5 kg fat) in a year. This example tells glucose absolute reading is largely useless except that a really bad number can tell how bad the condition is.

[....]

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