GAVIN PUBLISHERS

Advances in Preventive Medicine and Health Care

Stusser RJ. Adv Prev Med Health Care 4: 1025.

DOI: 10.29011/2688-996X.001025

Research article

The US and Cuba Showed Counterintuitive Health Outcomes and Efficiency Measures in 1999-2019 - Reassessment from their Life Support Systems Suggests Research for High-Resolution Health Parameters

Rodolfo J. Stusser*

Independent Researcher, Miami, FL, USA; Retired Professor, Department of Biostatistics-Informatics, Havana University's Medical School, Havana, Cuba.

***Corresponding author:** Rodolfo J. Stusser, 455 NW 114th Ave., Apt. 216, Miami, FL 33172, USA. Email: rjsb65a@live.com

Citation: Stusser RJ (2021) The US and Cuba Showed Counterintuitive Health Outcomes and Efficiency Measures in 1999-2019 - Reassessment from their Life Support Systems Suggests Research for High-Resolution Health Parameters 4: 1025. DOI: 10.29011/2688-996X.001025

Received Date: 07 May, 2021; **Accepted Date:** 17 May, 2021; **Published Date:** 20 May, 2021

Abstract

In 1999, the World Health Organization measured the US health efficiency worse than Cuba's one. In 2019, new measures confirmed it. Both results challenged capitalism's and socialism's efficiency standards. I made a scientific and ethical cost-benefit analysis of all their life and health standards, policies, and systems. It assessed physical, mental, and social well-being, health, and cost parameters. It compared them in 1999, 2019, and before/after political-socioeconomic changes occurred around 1960. Health policy evaluation depends on the outcomes' metrics/analytics used. Controlling the indirect/partial indices' confounding variables corrected the health and efficiency results. It relocated the US to the world's first sites while it moved Cuba to the last ones. Americans live longer, freer, wealthier, and healthier than Cubans, without human growth costs. Disability-adjusted life expectancies and education-adjusted health efficiency indexes cannot detect all living standards' health elements. These are a) the oversupply of living well-being and good health provided by the free US economy and culture, b) the scarcity of living welfare, excess of suffering and bad health produced in oppressed Cuba. Frankfurt's critical theory of social research stagnated the measure of the patient's positive and global health outcomes and overall costs. Blocking the US patient's global health metrics and automation advanced a post-Keynesian healthcare nationalization. Restoring the Hippocratic clinical judgment with a patient's health equation in a smartphone's feedback system shall decrease to a minimum his/her uncertain/asymmetric information regarding the physician. It shall re-strengthen the role of the free markets and get the optimal population health and efficiency gradually.

Keywords: Artificial intelligence; Automation; Clinical judgment's patient-centered health equation; Cost-benefit analysis; Outcome assessment; Health care; Health care political economy; Health status; Scientific method's logic and ethics

Media perceptions

'Cuba is poor and repressive with a dysfunctional economy, but in healthcare, it does an impressive job that the US could learn. Cuba has the 'Medicare for All' that many Americans dream about.' Kristof (2019) NY Times, Jan. 18.

Introduction

In 2017, I discussed early results in the University of Pennsylvania (UPenn) Perelman School of Medicine and the US Association for the Study of the Cuban Economy (ASCE) [1].

Scientific problem

In 1985-1993, Engelhardt, Brodie, and Lie found anomalies comparing the US and other affluent nations' health systems [2,3]. These were morally biased criteria of the health, financial, and social indices assessing their effectiveness and cost-efficiency. The World Health Organization (WHO) worsened those issues by comparing the US and 190 national systems [4]. It evaluated their abilities to translate expenditures into health. The WHO's statistical software used was a huge step forward [5], but its substantial means did not help. An index of efficiency on the level of health (IELH) ranked the multi-party capitalist US 72nd surrounded by middle- and low-income nations in 1997-1999. It rated the one-party socialist and impoverished Cuba 36th close to the high-income nations. It received many criticisms [6,7], and Brundtland discarded it [8]. These conflicting results with the

capitalism and socialism efficiency experiences lasted and were confirmed by other indices in 2016-2019 [9-11].

Problem's antecedents

In 1968-1974, working as a physiologist, internist, and health manager, I noticed the absence of a patient's and community's direct global health metrics [12]. In 1976, I analyzed the multifactorial negative health structure of a group of 'health areas' by their demographic and morbidity indices [13]. In 1977-1980, US scholars found the USSR rising infant mortality rates (IMR) and falling average life expectancies at birth (ALE-B) and explained them [14]. US scholars found better indices' improvements in Cuba's multi-party capitalism than in one-party socialism [15-17]. Terris showed how Costa Rica and the US reduced more negative health than Cuba with fewer doctors and facilities per persons [18]. However, the US health achievements and Cuban health failures remain censored [19].

In 1989-1991, East Europe was set free from Soviet socialism. Cuba's rulers forcing famine, extreme repression, and misery blocked people's liberation [20,21]. US visitors saw atherosclerosis and diabetes' deaths fell eating cane-sugar, white-rice, and few beans [22]. Similar chronic disease cleansing arose in the Jews emaciated by forced starvation and energy spending in World War II Nazi camps [23]. Cuba reached higher people's equity at the bottom than the Soviets and Nazis [24,25]. A US scholar liked Cuba's family doctor's plan in a US nationalized system [26].

Problem's consequences

The disability-adjusted ALE-B (DALE) could not assess Cuba's worst health. Health journals censored Friedman doubting that the ALE quantified the US best health [27]. He added that 'medical care expenses would have amounted to less than half their current levels if the pre-World War II system had continued. It would have put the US health expenses near the affluent nations' bottom rather than at the top. First, tax-exemption of employer-provided medical care, and later the growing Medicare-Medicaid, disrupted its free-market.' Fogel valued the US healthcare well, though its spending tended to a 33% GDP. He assessed its coverage of 100% top-quality care as the bests of Europe. All patients, insured or not, access appropriate care in a US emergency, hospital, or community clinic [28,29].

US scholars ratified better Cuban democratic human trends than totalitarian [30-33]. I replied to US scholars praising Cuba's health miracle: 'only socially free, well-informed, and wealthy populations are healthy [34,35].' Dickey, Norris, and I contrasted by analysis of variance some human indices among/within four-nation groups from free to unfree in 1900-1957-2005. Switzerland had better health than the US with lower doctor-density in 1957. Cuba showed the lowest living levels and excessive doctors in 2005 [36]. US scholars found a faster US deceleration reducing middle-age deaths among rich nations in 1974-2009 [37]. Is it right to assess healthcare's effects with death, disease, and survival numbers only? Dickey and I offered a patient's global health metrics and promotion system [38,39]. Few scholars get the US contributions to global well-being, joy, skill, and health. Most favor social democrat soft-rationed care [40,41]. Cuba's hard-rationed care dazzled some [42-45], linking it to a US embargo, not to 62-year internal oppression.

In 1978, the WHO tried to extend the USSR's primary care worldwide. In 2019, it claimed to adopt Soviet Cuba's one [46]. Since 1959, captive and impoverished Cubans emigrate massively to the US. Cubans refuse to be 'chronically ill and even dead in life [47-50].' As the world's most oppressed people jointly with the North Koreans, they value more the unassessed US well-being and positive health [12], given by its freedom, than its negative health.

Necessary Information

In 2000, I began this research briefing 43 US People to People International (PTPI) Delegations on Cuba's health concerning the US health (800 professionals-students). Most of them praised Cuba's health efficiency. Frankly, I shared my view and backed Cuba's democratization [51]. Cuba fired me in 2002. I kept exchanging by email and an informal PTPI Havana Chapter. Since 1994, I got invitations to US health exchanges. Cuba denied permits. In 2005, I retired and emigrated in 2010, exchanging in 37 US health political-economic forums (300 students-scholars) [52,53].

Objectives

My general goal was to reassess the US and Cuba's health outcomes and cost-efficiencies long-term evolution and propose a US research program to approach the most real measures and effective actions. The specific aims were:

- To reassess their national and global trends of actual and complete health effects during life and living costs
- To find what postponed the direct measures of patient-centered health automation besides the medical status quo
- To model a bottom-up approach of health metrics, analytics, and promotion from the patient to the community

Data and Methods

The US and Cuban life and health systems were objects of a socio-anthropological study, with a historical, logical, and ethical cost-benefit analysis of their political, socioeconomic, health, science, and cultural policies [54]. It included goals, outputs, inputs, black-boxes, and national/global environments [55]. It estimated the populations' health quantity and equality from a physio/psychologic well-being and ability, and patho/psychiatric suffering and disability qualities. It assessed their gains or losses according to the human rights protection [56]. It compared over

200 parameters of well-being and health cross/intra-nationally and quasi-experimentally by periods. These were 1800-1958 -before- and 1959-2019 -after- Cuba and the US turned to Leninist and post-Keynesian policies [1,57,58]. It used the United Nations (UN) definitions of rights, living standards, well-being, and health [12,59-63].

The study directly observed the national realities and the databases at the Ministry of Public Health (MINSAP), UN Agencies, Havana University (HU), US National Center for Health Statistics, UPenn, YaleU, and University of Miami (UM)'s Libraries, and by the Internet in 2000-2021. My IMR:maternal mortality ratio (MMR) disagreement ratio [47-49], the perinatal mortality-1 [64], and the external death causes allowed me to control the IMR's and ALE-B's confounding variables [65]. Cuba delayed a 10-year Census from 1963 to 1970 to cover wrong policies' impacts on mortality indices in 1959-1969. So, I had to estimate Cuba's 1958 missing and conflicting baseline data with first-hand observations. I estimated Cuba's health and efficiency for 2019 from early data with Miller's method [9-11].

Results

Cuban and US indirect and partial health and efficiencies in 1999 and 2019.

Rank 1: best nation to Rank 191: worst nation	WHO National Health System Attainment of Goals						Rank & Per capita total health expenses in 1997 international $	WHO Efficiency Rank & Index	
	Health		Responsiveness		Rank & Fairness in financial contribution	Rank & Overall goal attainment			
	Rank & Level of DALE-B & ALE-B	Rank & Distribution	Rank & Level	Rank & Distribution				On the level of health (IELH)	Overall (IOE)
	1997-1999								
	33rd (68.4)								
Cuba		41st(0.94)	115th(4.9)	98th(0.92)	24th(0.97)	40th(84.2)	**118th (109)**	**36th (0.85)**	39th (0.83)
	32nd (75.5)								
	24th (70.0)								
US		32nd(0.97)	1st(8.10)	3rd(0.99)	54th(0.95)	15th(91.1)	**1st (3724)**	**72nd (0.77)**	37th(0.84)
	26th (76.7)								

	Rank & Level of HALE-B & ALE-B	Bloomberg healthy nation rank grade	Relative health care cost %	Absolute health care cost $	Bloomberg health efficiency rank score
	2017-2019				
	32nd (69.9)				
Cuba		**30th (74.66)**	**3rd (12)?**	**52nd (971)?**	**42nd (42.0)**
	37th (78.7)				
	36th (68.5)				
US		**35th (73.02)**	**1st (17)**	**1st (9870)**	**54th (29.6)**
	36th (78.9)				

Legend: ALE=average life expectancy at birth. DALE-B, 1999 & HALE-B, 2019=disability or healthy-adjusted ALE-B --free from 109 or 359 disabling diseases & injuries. IELH & IOE=education-adjusted index of efficiency on the level of health & overall one. 00(0.0)=WHO's ranks by calculated coefficients of regression equations & Millers and Lu's ranks by calculated grades & scores. **Sources:** [4-5,9-11,66-73]

Table 1: Comparisons of international rankings and values by the WHO's and Bloomberg's indices measuring negative health, expense & efficiency. Cuba and the US, 1999 and 2019.

Table 1 shows, in 1999, the D/ALE-B predicting that the US population will live a little longer and less ill than the Cuban one. The IELH values ranked the US efficiency doubly worse than Cuba. Cuba converted low health expenditures in only 1.6 years less of DALE-B than the US with the highest ones. In 1958, the Cuban peso was worth cents over the US$. In 1991, Cuba devalued it more than in 1961 secretly. Doctors earned less than one US$ daily, attaining the world's lowest-income [36]. The US showed the best care responsiveness but less equal financial contribution than Cuba. The WHO surveyed Cuba's risk of household expenses deprivation transversally. It ignored that socialism impoverished Cuba's families catastrophically for 40 years. Cuba's real fairness was behind 100 nations. Autocratic Oman had the highest IELH, while democratic Switzerland, the 26th [4].

In 2019, the H/ALE-B/grades expected the Americans to live a bit lengthier but sicker than the Cubans. Cuba's low absolute/high relative health costs stayed lower than the US. UN/WHO/PAHO's analysts evade conflict, tolerating Cuba's data irregularities. It is neither Cuba's 'universal care' nor an 'oversized US$ purchasing-power-parity.' Its socialist economy moved from 'brains' back to 'brawn' again [74]. Thus, Cuba kept costs low, and doctors eager to gain more abroad since the 1990s. In the US, 2012, the author with low-resources survived in a UM Hospital heart arrhythmias and failure progression underdiagnosed and untreated in the best HU Heart-Centers for 27 years.

In 1900-1999-2019, the US provided a surplus of well-being, positive and global health, while healed the suffering, disabilities, and negative health to its entire population and world through advanced policies [75]. In 1959-1999-2019, the Cuban rulers created a deficit of well-being, abilities, and positive health for all, limiting their growth to them covertly [76]. They censored and biased statistics on mental control and infectious epidemics, simulating a pseudo-paradise to denigrate the US reality reported. They inflicted mental pain, debilities, and negative health on most Cubans and harmed the Third World, promoting regressive socialist political-socioeconomic policies [77]. Thus, the socialist USSR/Russia, China, and allies disrupted the world democratic process led by the US, helping slow down about four-fifths of the human well-being and health potential growth in 1917-2021.

The H/D/ALE-B/grades and IELH/OE/scores made partial measures. Their distorted indexes' structures lacked most individual's living well-being and positive health parameters [12]. They undervalued the US best positive health caused by freedom's upgrading progress, while underrated Cuban worst negative health due to forced setback. The US and Switzerland were their utmost false negatives of excellent health and efficiency, while Cuba and China were the supreme false positives [4-5,9-11,67,68]. The US health spending correlated directly and strongly with human rights, nutrition, housing, education, GDP-p, and other eight living standards growth. Cuban health spending, inflated by the socialist propaganda, is associated inversely with all falling living levels. A complete reassessment with more health and cost parameters switched their contradictory sites. The US health outcomes and efficiency advanced to the world's first sites [27,29,65], while Cuban ones receded over the 100th [1].

Cuban and US inferred and limited health and efficiencies' behaviors, 1800 through 2019.

	ALE-B yr	ALE-65 yr	HALE-B yr	HALE-65 yr	IMR	MMR	IMR/MMR ratio	PNM-1 rate	Abortion ratio	Health expenses % of GDP	GDP-pc	Political-socioeconomic system
1800												
Cuba	28	-	-	-	320?	1000?	32	-	0.00	0.5?	750?	Autocratic feudalism
US	30	-	-	-	300	800?	37.5	-	0.00	0.7?	2545	Democratic capitalism
1850												
Cuba	32	-	-	-	200?	900?	22.2	-	0.00	0.8?	888	Autocratic capitalism
US	38	14	-	-	140	700	20	-	0.00	1.2?	3632	Democratic capitalism
1900-1902												
Cuba	38	-	-	-	180	800?	22.5	-	0.00	1.5	1680	Democratic capitalism

US	47.8	12.5	-	-	145	600	24.2	-	0.00	2.0	8770	Democratic capitalism
1929												
Cuba	45	-	-	-	80	750?	10.7	-	0.05?	2.5	2507	Democratic capitalism
US	57	12.4	-	-	68	695	9.8	-	0.00	3.5	11954	Democratic capitalism
1940												
Cuba	53	-	-	-	52	400?	14	-	0.15?	3.0	2059	Pre-social democracy
US	63.2	12.7	-	-	47	376	13.9	42	0.03	4.0	12005	Pre-social democracy
1958												
Cuba	66	-	-	-	32	80-120?	40	33.3	0.20?	3.2?	2922	Autocratic capitalism
US	69.7	14.4	-	-	27	40	67.5	28.9	0.08	5.0	16946	Democratic capitalism
1990												
Cuba	73-75?	16.9?	61-66?	11-13?	8?-11	60?-70	13.3	19.4	1300-1500	3.4?	4713?	Totalitarian socialism
US	75.4	17.3	64.7	12.7	9	10	90	9.0	387	11.0	16946	Democratic capitalism
1997-1999												
Cuba	74-75.5?	18?	63-68.4?	12-15?	6?-9	47-55?	12.7	17.4	1500-1600	6.3?	3416?	Totalitarian socialism
US	76.7	17.6	70.0	15.9	7	13	54	7.0	320	3.7	43073	Democratic capitalism
2017-2019												
Cuba	76-78.7?	19-22?	64-69.9?	11-14.3?	4?-7	36-45?	13.5	12.9	1300-1500	6-12.1?	8326?	Totalitarian socialism
US	78.9-79.1	19.8	68.5	13.8	5.6	14-16	37.3	6	186	16.9-17	55335	Democratic capitalism

Legend: (-)=no datum. (?)= low reliable figure. ALE=average life expectancy -at birth & age 65 yr. HALE=healthy-adjusted ALE -at birth & age 65 yr. IMR=infant deaths of 0-1 year per 1000 live births. MMR=maternal deaths per 100000 live births. IMR/MMR ratio=Author's disagreement growth ratio. PNM-1 rate= perinatal mortality-1 (early neonatal + late fetal deaths) per 1000 live births. Abortion ratio=aborted embryos per 1000 live births. GDP-pc=gross domestic product per capita in 2011 prices international $. **Sources:** [4-5,9-11,15-18,20-22,27-36,39,47-50,64-75,78-95]

Table 2: Comparisons of national/international indirect and partial indices of negative health, finance & political-socioeconomic process. Cuba and the US, 1800-1958, 1959-2019.

Table 2 reveals how socialist Cuba in 1959-2019 slowed the IMR falling and ALE-B rising rhythms reached with capitalism. Since 1958, its lowest decline of IMR: MMR disagreement ratios and perinatal mortality-I rates respect the US and 43 nations of best IMR, evidenced that Cuba followed odd trends of IMR, and hence, ALE-B. Advised by the USSR, Cuba worsened living and health statistics reported to the UN/WHO in 1954-1958. Its rulers erased Cuba's achievements in 1800-1958 and forged false ones in 1959-2019 [49]. They built dual scientific biomedical and cyber-electronic centers [96-98]. Thus, they clandestinely created 1) mind-control techniques for dissidents, 2) biochemical, radio-electronic, and cybernetic wars against the US, and 3) leaders' elite healthcare. They assimilated high-tech psychology, neurophysiology, virology, biochemistry, genetic, and computer labs. In 1968-2010, I criticized the Communist Party's political, scientific, and health policies [52,53]. Cuba adapted pharma, vaccine, and bio-techs. It achieved few sound innovations because socialist coercion inhibits personal creativity fostering follow-up science. Most of Cuba's exported products reproduced tech patents donated or took by Russian-Chinese intelligence from the US, Europe, and Japan's third-fourth industrial revolutions [99,100]. Cuba's deteriorated population health is independent of its military and commercial bio- and cyber-tech capacities [52,53].

In contrast, US democratic capitalism improved its national and global health outcomes. It enhanced all standards of living, well-being, and health. The US showed 90% of self-perceived good and excellent health in 1980-2018 [90]. Its registration of live and dead births is independent of gestation-age and weight. It recorded most sick and dead embryos, fetuses, newborns, mothers, adults, and elders with real causes [1]. The US transparency of failures and successes allowed innovation and progress. In 1999-2019, Cuba went slightly ahead of the US with inconsistent better IMR, ALE-65, and HALE-B/65. All Cuba's figures need independent proof. In 1959, its rulers took people's properties, savings and enslaved them. Their self-interests were far from the pledged social justice. Cuba's subsistence life levels resulted from oppression, not from the US embargo on the rulers' desired long-term credits, to never pay them.

The Cuban Leninist health system was an heir of the dreamt by Menuret amid the national-socialist French Revolution [101]. Cuba's police-state replaced private, scientific individual medicine and hospital care for traditional community medicine, home care, health indoctrination, and forced prevention. It depressed all living and health levels achieved until 1958, leaving most Cubans insufficiently treated and even untreated. Well-being, natality, health, rationality, and immigration decayed [1]. Suffering, abortions, disorders, deaths from despair, deception, and escaping by the sea rose. Cuba regressed to a 'natural economy [74].' Its government forced the people to minimal feeding, shelter, and other 11 living standards' levels. The neo-Malthusian trap seemingly reduced physical chronic diseases in Cuba's highly destroyed and polluted ecosystem, with few high-tech health costs. But it raised chronic mental suffering and inability to identify the leading oppressors supported by Russia, China, North Korea, and Iran and rebel against them. Such unethical means and effects make inconsistent famous Cuba's apparent 'high health' at a 'low cost.'

In 1959, the uninsured US citizens, legal and illegal residents, almost received adequate treatments as the 75% private insured [29]. 90% of senior citizens could afford to pay their total health care costs out of pocket [102]. US administrations wanted Russian/German-style 'universal rationed coverage.' Since 1965, post-Keynesian Medicare, Medicaid [27,103], and Affordable Care Act [104] subsidies disrupted the medical care market, raising costs with fixed prices. NHI/CDC funded population health inequity research more than patient health metrics-promotion innovation-automation. All these programs slowed the scientific medical progress and eased traditional practice [105,106]. Fewer innovations could not cut the increasing care costs. Parallelly, the US industries exported many well-paid jobs to emerging nations and imported their cheapest workforce [79]. Governments did not fix this US workers' deprivation. Instead, they obliged the US workers with the remainder of less-paid jobs to buy insurance until they covered 90% of the population. Thus, they helped tripled the US total health and net social expenses [1,71-72,90,107,108].

Discussion

Flaws of the Current Population Health Outcomes and Cost-Efficiency Indices

Arrow found uncertain/asymmetric info in the patient/physician relationship on disease incidence and therapy. It led competitive markets to allocate resources inefficiently, causing the emergence of trusts and norms to compensate for such failures [109]. Complete health and efficiency indices could evaluate policy/systems thoroughly [1,6,34-36,38,39,110-112]. But the WHO H/ALE and IELH copied the UN human development index (HDI) partial structure [93]. In UN assemblies, Cuba guided oppressive regimes to exclude a HDI's sub-index for freedom, besides ALE-B, literacy-schooling, and GDP-p [113]. So, I estimated a freedom-adjusted HDI. It switched Cuba's 51st place for the 136th and the UK's 21st one for the 12th [48]. In 1960-2019, the US showed the top world's living levels, while Cuba hid the bottom ones. WHO indexes ignore UN 150 rights and 10 living standards [1,20,21,28,29,34-36,39,48].

The ALE is the WHO's gold standard to predict population survival [12], not to measure health in real-time. It includes survival from 8,000 major fatal diseases/injuries of 18,000 ones. The HALE-B predicts survival free from 359 disabilities, mostly pathologic [67], but not from the psychiatric caused by oppression.

It predicts less Cuban negative health than the actual one due to lack and inaccuracy of diagnosis and censorship [1]. It cannot predict the US surplus of physiologic and psychologic well-being, ability, and positive health due to freedom's abundance. US health reserves stay a sizeable residue unclassified by the WHO. HALE-B is not sensitive to patients/populations with excellent, good, and acceptable health qualities or measurable quantities. Reifying, measuring directly, and enhancing patient-centered health is the leading primary medicine challenge since the WHO defined health [114].

The US has the highest survival from diseases/injuries at all points of care but the lowest ALE-B among affluent nations [90]. Its highest traffic accidents and homicides due to top automobiles and guns per capita explained it. Adjusting wealthy nations' ALE-B by both death causes raised the US ALE-B to the world's first place [65]. Correcting them by drug addiction deaths would raise it more [115]. Since 1959, the USSR, China, and Cuba urged Colombia's socialist guerrillas to flood the US with narcotics [76,77]. In 1958, Cuba had high cars and arms per head [116]. Rulers took them, blocking people's liberation for 62-years. Mostly, military and officials have them now. Felons have arms too. External death causes and infectious diseases' censorship inflates Cuba's H/ALE-B to attract tourism. The adjustment of Cuba's IMR by its double perinatal mortality-I than the US would worsen its H/ALE. However, confusion variables' control is not enough. Measuring patient's direct positive and global health shall raise health and efficiency.

Why the US medicine still lacks a patient's negative, positive, and global health [12,59] classification and parameter equation? The HALE structure comes mainly from studies of common US fatal and disabling disorders. So, it mirrors the full US negative health profile as numeraire. Lacking direct categories and dimensions to measure the plentiful US well-being, abilities, and positive health delivered deflated the US HALE. It neither detects the lack of positive health formation in declining nations. Cuba had much of it 63-years ago. The HALE ignores disorders censored by the USSR, China, and Cuba in the WHO's partial taxonomies. Thus, they hide the mental sufferings and disabilities by oppression, shortage, famine, and genocide. Two-thirds of the UN members are autocratic [79] and endorse them.

The Critical Theory of Social Research Biased the Health/Efficiency Indices.

The US and Cuba's health and efficiency incongruences are due to a selective perception of the facts misguided by the Frankfurt School's critical theory. It permeates public policy research. It truncated the scientific method's logic and ethics. It urged the superior intellectual minds to observe and model the truth without hypothesis testing against complete evidence. It devalued the scientific analysis of the public policies [117,118]. In 1923, Moscow funded this think-tank, upgrading Marx's class warfare and economic socialism simulating more social justice. In 1935, these neo-Marxists emigrated to Oxford, Columbia, Princeton, Brandeis, Berkeley, and San Diego Universities. They hid Nazism's socialist roots and adapted Gramsci's Cultural Marxism policies to the US conditions [119,120].

They defied the American Revolution's liberalism of Lock and Smith with the anarcho-socialism of Godwin, Owen, Saint-Simon, and Fourier. In 1955-1965, Marcuse brainwashed the US students with Sexual Liberation, Psychedelic Drugs, Identity Politics, Environmentalism, Political Correctness, and Postmodernism [121-125]. To unite the world's workers, need the US minorities' cultural war against the Founding Fathers' values. The US students and victimized groups denied their Judeo-Christian family values. The compassion for people's equity of outcomes as a greater good deserved the sacrifice of freedom and truth. They backed Korea's war against the USSR's and China's socialism in 1950. But they accepted their invasions in Cuba, Vietnam, Nicaragua, and many developing nations. Their intellectual disdain for the totalitarian-socialism allowed this aggressive ideology to conquer a third of the world [126]. Those students have run the US government agencies, academy, media, and corporations for 60-years [127,128].

The neo-Marxists misinformed and subverted the free US and world order. US intellectuals' high social mobility made them the most resentful of personal property and business success [129,130]. The USSR, China, and Cuba's intelligence planted false memoirs of the world facts in the US academy, media, and UN agencies [77]. The US health journals filter out articles supporting US and Cuban health realities. The PAHO/WHO's offices and journals reject unofficial submissions of Cuban doctors' job applications and papers. The Harvard and Johns Hopkins Public Health Schools exchange with Cuban officials but not with exiles [52,53]. In 2017, the UM Institute for Cuban/Cuban-American Studies' website erased 12-years of Cuban Affairs' clarifying essays on Cuba's life and health decline [1].

The Evolutionary Cultural Socialism Fosters Medical Care Nationalization.

The evolutionary cultural socialism inspired Keynes. During the World Depression, he redesigned the social democrat political economy. Under the USSR and neo-Marxist disinformation, Keynes persuaded the US and UK to restrict their successful democratic capitalism. He wrongly predicted that a gradual rise in state spending and servants would lead peacefully to a 'democratic market socialism.' In 1936, Hayek found the critical theory's abuse of reason ending the UK and US universities' truth era. He lived the national-socialist (Nazi) rise and knew of the USSR silenced horrors [129,130]. Keynes died minimizing socialism's essential totalitarian nature in 1946. In it, 'the worst get on top.' He induced US and Soviet scholars to think that the USSR New Economic

Policy would converge their nations in a new industrial state [131].' But the secret richest socialist elite's engineering caused the most unfair equity at the bottom. Keynes ignored the USSR citizens' hardships. Hayek battled Keynes' naïve views and worse post-Keynesian policies. Since Lenin, a key step toward socialism is medical care nationalization.

Buchanan tried to clarify Smith's free-market system's 256-year black-box for the US people. Its successful practice could not reject it [132,133]. Nevertheless, its scientific model still needs to explicit some trade-offs of the American Revolution's principles. These work under the water of the 'market economy iceberg peak.' Thus, its virtues would be so known as well as its vices in the US. Free from the idyllic views of all political servants' contradictory self-interests [134,135]. It would clarify the socialist theories' dictatorial essence. Since 1947, the post-Keynesians substantiated the advantages of a utopian US 'democratic socialism [136].' They are blind to the dangerous world's imbalance between the scarce libertarian and plentiful despotic trends. The European, Canadian, Australian, New Zealander, Israeli, and Japanese more equal social democracies have not advanced by their merits only. They depend on the US democratic capitalism's economic-military, scientific-tech, and cultural strengths, despite its faults [39,128]. Without it, the USSR, China, and allies would have 'infected them' with a false egalitarianism of envy disguised as fair altruism.

Friedman wrote 'The high cost and inequitable character of our US medical care is the direct result of our steady movement toward reliance on third-party payment, with the dissatisfaction of patients and doctors. A 'cure' requires reversing course, reprivatizing medical care by eliminating most third-party payment, and restoring insurance's role to protect against major medical catastrophes. However, the vested interests that have grown up around the existing system, and the status quo's tyranny, make that 'cure' not feasible politically now [27,137,138].' What sound health innovations does medicine need from doctors, nurses, epidemiologists, and biostatisticians [139-142]? Without them, mathematicians and informaticians cannot help raising the patient's global health outcomes and efficiency.

A Patient-Centered Health Equation shall Reduce Uncertain/ Asymmetric Info.

McWhinney predicted that primary care's most comprehensive clinical method is on the brink of a major transformation [106,143-149]. New metrics, analytics, and enrichment of the entire patient's health iceberg [112,115] shall increase its efficiency. First, it needs to build with divergent and defragmented approaches a broader patient-centered health assessment, diagnosis, lab parameters, downward causal model, math equation, prognosis, and intervention's decision-making algorithms [38,39,114]. A health smartphone's feedback system (HSFS) app will make them functional for patient health enhancement. The key innovations are:

1) Inserting a patient-centered health equation in general medicine's clinical method will support the health diagnosis and prognosis steps [1,38-39,114,150-155]. Backer envisioned it in 1977 [156].

2) Identifying with a clinical epidemiology of health and characterizing the thousands of patient's positive health parameters and enhancer factors statistically [12,157-161]. Galdston, Breslow, and Burns envisaged them in 1947, 1972, and 1974 [157,158,162,163].

3) Formulating the patient-centered global health (positive ± negative) algebraic equation. It shall subtract from the new positive health parameters and factors the current negative ones. In 2013, Dickey and I debated an early HSFS Project with Columbia University Biomedical Informatics Department [38]. An expert saw it as more complex than the Human Genome Project.

4) Creating an algorithm that joins the positive, negative, and global health diagnosis and prognosis magnitudes, categories, and codes to the safest and most effective health intervention codes needed to improve them,

5) Designing and building a treatment, preventive, and health promotion maneuvers' feedback decision-support mobile app as cyber-infrastructure of a broader clinical method for the medical team and the patient [1,38,39,106,164]. Thereby, 5G or higher Internet speed, artificial intelligence (AI), and quantum computing can serve the HSFS in real-time. In 2012-2020, I proposed it to President Obama, HHS Secretaries/CDC/NIH Directors, and President Trump.

Bouza, an AI mathematician, suggested to me that Deep Neural Network machine learning techniques can support the third task [165,166]. AI can help design and tune the patient's health equation. It must include all potential health parameters (physical, mental, and social health effects and upward/downward causes) of the patient's and environment's harmony [167]. AI can automatically discover the relationships between the cause-effect parameters and choose their coefficients with higher non-linear models [168]. AI would need to start with a data matrix of at least 50,000-100,000 patients by 500-1,000 parameters of unnamed electronic health records from a private, public, or military health system. AI also can help predict and prioritize the best health targets optimally. Checking up the patient-centered health, the HSFS can get precise action options to raise its health equilibrium by life stages. It will process data, deliver findings, and offer the best decisions to the patient and medical team's queries [169,170].

This patient-centered health metrics fuses two here-to-for distinct approaches. Hippocratic and Euryphon's methods focused on proactively preserving patient's health and finding and healing what corrupts it [139]. Global health shall integrate the patient's

physical, mental, and social health results in space-time from electronic health sensors and cloud-based private record' database [38-39,171-173]. According to the patient's health 'memome,' genome, and patient's behaviors, and medical interventions, global health balances varying positive and negative health effects [1,106].

Positive health effects are: {[physiologic and psychologic subjective symptoms/objective signs of enhanced or normal well-being and abilities' reserves of order(s) or 'health(s),' related to gestation, birth, growth, development, performance, and freedom (e.g., arterial normotension tending to borderline hypotension in early life stages)], and their causes [enhancer factors and 'healthgenic' parameters (e.g., normal arterial pressure inclining to systolic and diastolic 90/60 mm of Hg in early life stages)]} [12,158,160]. Negative health effects are: {[pathologic and psychiatric subjective symptoms/objective signs of well-being and abilities' reserve depletion, plus suffering and disabilities by disorder(s) or disease(s), associated to un-freedom, miscarriage, degeneration, senescence, and dying], and their etiologies [risk factors and pathogenic parameters (e.g., all the etiopathogenesis mechanisms known)]} [1].

Computing the patient's global health result is the most exact way to weigh its thousands of variables on a 100-0 scale [38,174] in its space-time curve block. Automated math algorithms will analyze, simulate, and predict time trends and variations in need of patient's habits adjustment or medical correction [1]. The HSFS will inspire the patient's health self-interest, responsibility, and coaching. Reducing the patient's uncertainty and asymmetry about his/her health status and health practice's outcomes [162,163] will increase community health quantity, quality, and equality [175,176]. Research must create a math matrix of the patient's positive health parameters and enhancer factors. First, it can mirror the patient's negative health matrix's clinico-epidemiologic structure. After, it shall find its own patterns. Thus, the patient could check up and raise his positive and global health measures over time. S/he might take actions as suggested, choosing and improving his 'memome,' behavior, and even genome -in the future.

Measuring positive health and enhancers shall empower the randomized controlled trials (RCT) to detect minor significant statistical results for any endpoint or intervention [1,38]. Stratifying patients by favorable prognostic health stages and enhancers concurrently with adverse prognostic disease stages and risks would equalize more the groups to contrast. It will reduce the mega- RCT troubles, duration, and cost. Patient-centered precision health will allow building population-centered health parameters and indices of negative, positive, and global health [1,38-39]. The HSFS will give the last data and advise options to improve the patient's health balance. It would avert the limitation of a patient's freedom of choice in making health-related decisions, helping her/him to achieve with all the other living levels a good and worthy life [140]. RCT shall test the HSFS efficiency [38,39].

Conclusion

Between 2000 and 2021, I knew in Cuba and the US that the US academy overvalued the socialist Cuban medical system and devalued the capitalist US one. This anomaly is due to the individual patient's health science stagnation. Health policy evaluation depends on the outcomes' metrics and analytics utilized. The US and Cuban health and efficiency incongruences in 1999-2019 vanished after controlling the indexes' confounding variables. The US supplies higher health quantity, quality, and equality at fewer ethical and political-socioeconomic costs than Cuba and most world's nations. In the 1930s, the US medical care became under strong Marxian-Keynesian critiques. Since 1965, the US federal government began a Marcusean-post Keynesian absorption. Frankfurt's critical theory of social research fostered the indirect and partial disability-adjusted life expectancies and education-adjusted health efficiency indices. Degrading the health policy's scientific analysis, it induced the abolishment of the powerful US private medicine. These indices did not detect all living standards' health elements. They lack the needed sensitivity to find the true US healthiest and efficient system's surplus of living well-being and positive health supplied by its economy and culture to the US and world's citizens. These neither have enough specificity to find the real socialist unhealthiest and inefficient system's deficit of welfare, excess of suffering, and negative health of oppressed Cuban and Third World's citizens. Such misleading results encouraged to end the freedom to choose and innovate with infomedical-tech the best US medical care and tripled its costs. Most social democrat systems advance thanks to the US democratic capitalism's economic, military, scientific, and cultural superpower.

Suggestions

The US could optimize its satisfactory well-being and health data and care systems. Automation of a new patient's global health metrics, analysis, and enhancement system can make medical care more effective and affordable. Besides, the US must globalize less and redistribute more industrial and research jobs with all their benefits among their citizens in a freer market economy. These changes are more important than reaching full formal rationed care access with federal government funding. A US research program on a patient health equation, digital, and artificial intelligence feedback mobile system will reduce the patient information uncertainty and asymmetry concerning the university physician. Updating the clinical method with real-time direct measures and infomedical-tech to raise the patient's positive and global health will upgrade the scientific medicine, so far managing negative health mostly with biomedical-tech. It shall enhance the patient health reserves

and avoid depletion, earning more degrees of freedom to choose. It will allow quantifying the patient-centered health and bottom-up population health with a high degree of resolution. RCT may raise their power and speed to detect small effects. Federal government inefficient transfer programs, subsidies, trusts, regulations, norms, and costs shall fall gradually to the essentials. It has occurred in other automated US industries.

Funding: No funds, grants, or other support was received. The paper expresses the author's view exclusively.

Conflict of interests/Competing Interests: No conflict or competing interests.

Acknowledgments

This work is a Tribute to Hippocrates of Cos, Lord Kelvin, UGlasgow, and Satya Swaroop, WHO-Statistical Studies Chief. They inspired me to find a patient's global health metrics. Bjorn Holmgren, UChile-V, Thalia Harmony, UNAM-Q, E. Roy John, NYU, and John Fertig, ColumbiaU, prepared me for this research. Pierre Mansourian, WHO-Research Strategy's Director, and Louis Currat, WHO-Global Forum for Health Research's CEO, taught me global health and economics. I learned from Fidel Ilizastigui, Ramon Ventoso, Arsenio Carmona, Ernesto de la Torre, Guillermo Halley, HU, John Howie, UEdinburgh, Lennart Nordenfelt, LinkopingU, Gunther Eysenbach, HeidelbergU, and Thomas Norris, UWS. Mary Eisenhower, US PTPI's President, eased my professional exchanges in 2000-2002 and informal ones in a PTPI Havana-Chapter until 2010. Richard Dickey, WFU, AACE's President, was my principal collaborator from and at Hickory, NC, in 2001-2021. I also learned from Hugo Engelhardt, BCM/RU, Dan Callahan, Hastings Center, Chris van Weel, WONCA's President, Takuya Fujiwara, Tokyo-NetHospital, Maurice Mars, NatalU, and Lyn Hammer, South African-MRC. Since 2010, exiled in the US, I learned from Kent Bream's medical students and residents in UPenn periodically. Verle Headings let me learn from HowardU students and Charles Mouton, Michal Young, Inez Reeves, and Renee Jenkins, AAP-SAM's President, in 2010-2011. Francis Coughlin helped me make a Tribute to Alvan Feinstein with Dean Robert Alpern and learn from YaleU students in 2010-2013. Donald Asp and Daniel Ostergaard made me an AAFP member in 2001. Sherrilynne Fuller, UWS, exchanged with me in a CDC Informatics Meeting in 2011. Edward Shortliffe allowed me to discuss my digital health metrics project with George Hripcsak's ColumbiaU experts in 2013. I learned from Sherri Porcelain and UM students, Jaime Suchlicki, UM-ICCAS' Director, and Steven Ullmann's UM Healthcare Business Conferences 2012-2021. I learned from Jorge Romeu, Sergio Diaz-Briquets, Jorge Perez-Lopez, Maria Werlau in ASCE Conferences, and Julio Shilling, Cuban American Voice's Director. Santiago de Valle, MDC, Jose Bouza, UF, and Philip Bentlif, BCM, advised me about this paper. I owe my wife, Maria Espinosa, HU, for her exceptional support, criticisms, and precious lifetime donated to this research.

References

1. Stusser RJ (2017) Cuban and US health care systems 1900-2016: Similarities, differences, and efficiencies. Cuba in Transition 27: 306-322.
2. Engelhardt Jr HT (1988) National health care systems: Conflicting visions. In H-M Sass, RU Massey (Eds), Health care systems. Moral conflicts in European and American public policies (1st ed). Dordrecht: Kluwer Academic Publ. pp. 3-14.
3. Brody BA, Lie R (1993) Methodological and conceptual issues in health care system comparisons: Canada, Norway, and the United States. J Med Philos 18(5):437-63.
4. World Health Organization (2000) The world health report, 2000. Health systems: Improving performance. Geneva: WHO.
5. Murray CJ, Evans D (2003) Health system performance assessment: Debates, new methods, and new empiricism. Geneva: WHO.
6. Coyne JS, Hilsenrath P (2002) The world health report 2000: Can health care systems be compared using a single measure of performance? AJPH 92(1):30, 32-3.
7. Musgrove P (2003) Judging health systems: reflections on WHO's methods. Lancet 361: 1817-1820.
8. Brundtland GH, Frenk J, Murray CJ (2003) Letter. WHO assessment of health system performance. Lancet 361(9375):2155.
9. Miller LJ, Lu W (2016) US healthcare system one of least efficient. PharmacoEconomics & Outcomes News 764:6.
10. Miller LJ, Lu W (2018) These are the economies with the most (and least) efficient health care. Bloomberg Business, Sep. 11.
11. Miller LJ, Lu W (2019) These are the world's healthiest nations. Bloomberg Economics, Feb. 24.
12. World Health Organization (1957) Measurement of levels of health; report of a study group. Tech Rep Ser 57(137):3-24.
13. Stusser RJ (1979) The structure of mortality indicators in a sanitary area]. Rev Cub Admin Salud 5:61-75.
14. Eberstadt N (1981) The health crisis in the USSR. Rising infant mortality in the USSR in the 1970s by C Davis, M Feshbach. US Bureau of the Census Series P-95, 74, 1980. New York Review of Books, Feb 19.
15. Díaz-Briquets S (1983) The health revolution in Cuba. Institute of Latin American Studies. Austin: University of Texas Press.
16. Luxenburg N (1984) A look at Castro's statistics. Encounter 62:58-62.
17. Eberstadt N (1986) Did Fidel fudge the figures? Literacy and health. Caribbean Review 15:5-7, 37-38.
18. Terris M (1989) The health status of Cuba: recommendations for epidemiologic investigation and public health policy. J Public Health Policy 10(1):78-87.
19. Blaylock RL (2011) Managed truth: The great danger to our republic. Surg Neurol Int 2:179.
20. No authors listed (2006) Cuba's delayed transition needs. [Stusser RJ's letter from Havana]. Lancet 368(9544):1323.
21. No author listed (2008) Health consequences of Cuba's special period. [Stusser RJ's letter from Havana]. CMAJ 179(3):257.
22. Stusser RJ (2013) Population trial of extreme coercive physical healthism Cuba 1989-2010, e-letter. BMJ (26 Apr). https://www.bmj.com/content/346/bmj.f1515/rr/642829.

23. Loscalzo J (1990) Regression of coronary atherosclerosis. NEJM 323(19)1337-1339.

24. Susser M (1993) Health as a human right: an epidemiologist's perspective on the public health. AJPH 83(3):418-426.

25. Davey-Smith G (2004) Lifestyle, health, and health promotion in Nazi Germany. BMJ 329(7480):1424-1425.

26. Roemer M (1993) Primary health care and hospitalization: California and Cuba. AJPH 83(3):317-318.

27. Friedman M (2001) How to cure health care. Public Interest 40:3-30.

28. Fogel RW (2004) The escape from hunger and premature death, 1700-2100. Europe, America, and the Third World. Cambridge: Cambridge University Press.

29. Fogel RW (2012) Explaining long-term trends in health and longevity. New York: Cambridge University Press.

30. Romeu JL (1995) More on the statistical comparison of Cuban socioeconomic development. Cuba in Transition 5:293-301.

31. Bureau of Inter-American Affairs (1998) Zenith and eclipse: a comparative look at socio-economic conditions in pre-Castro and present-day Cuba. Washington, DC: Department of State, Feb 9.

32. McGuire J, Frankel L (2005) Mortality decline in Cuba 1900-1959: Patterns, comparisons, causes. Lat Am Res Rev 40:83-116.

33. Hirschfeld K (2006) Health, politics, and revolution in Cuba since 1898. New Brunswick: Transaction Publ.

34. Anonymous Cuban (2007) Achieving health equity with more liberty, wealth, and ethics. [Stusser RJ's e-letter from Havana]. BMJ (Oct 5). https://www.bmj.com/content/335/7621/628.3/rapid-responses.

35. Anonymous Cuban (2007) Poverty, emigration, government, development, and equity. [Stusser RJ's e-letter from Havana]. AFM (Dec 3). https://www.annfammed.org/content/5/6/486/tab-e-letters#poverty-emigration-government-development-and-equity.

36. Stusser RJ, Dickey RA, Norris TE (2007) Enhancing global rural health utilizing comprehensive and electronic primary health and life care and research. Working Paper, Havana-Hickory-Seattle. Quasi-experimental findings.

1. https://www.researchgate.net/publication/344467220_Enhancing_health_with_e-primary_care_research.

37. Murray CJ, Frenk J (2010) Ranking 37th measuring the performance of the US health care system. NEJM 362(2): 98-99.

38. Stusser RJ, Dickey RA (2013) Quality and cost improvement of healthcare via complementary measurement and diagnosis of patient general health outcome using electronic health record data: Research rationale and design. J Med Syst 37(6): 9977.

39. Stusser RJ, Dickey RA (2016) A broad-spectrum health delivery model and intelligent mobile information-network to strengthen individual-based primary care medicine: Scientific foundation and architecture. J Healthc Commun 1: 2.

40. Schneider EC, Squires D (2017) From last to first - could the US health care become the world best? NEJM 377(10):901-904.

41. Fuchs VR (2018) Is US medical care inefficient? JAMA 320: 971-972.

42. Campion EW, Morrissey S (2013) A different model - medical care in Cuba. NEJM 368(4):297-299.

43. Keck CW (2016) The United States and Cuba - turning enemies into partners for health. NEJM 375: 1507-1509.

44. Loewenberg S (2016) Cuba's focus on preventive medicine pays off. Lancet 387: 327-329.

45. Johnson C (2018) The virtues of repression: politics and health in revolutionary Cuba. Health Policy Plan 33: 758-759.

46. Pan American Health Organization/World Health Organization (2019) Universal Health in the 21st Century: 40 years of Alma-Ata. Report of the High-Level Commission. PAHO.

47. Stusser RJ (2011) Demystifying the Cuban health system. An insider's view. Cuba in Transition 21: 222-234.

48. Stusser RJ (2012) Access to human health, freedoms, and other standards of living development in Cuba. Cuba in Transition 22: 315-331.

49. Stusser RJ (2013) Cuba's long tradition of health care policies: Implications for Cuba and other nations. Cuba in Transition 23: 369-380.

50. Stusser RJ (2015) Realities of health progress in Cuba, 1959-2013. Prospects for a completed transition. Cuban Affairs Q J 10: 1-27. http://www.cubanaffairsjournal.org Accessed until 18 Aug. 2017. Available on https://www.researchgate.net/publication/343636665_Realities_of_Health_Progress_in_Cuba_1959-2013_Prospects_for_a_Completed_Transition_Cuban_Affairs_Quarterly_e-Journal.

51. Christian Liberation Movement (1998) Varela Project for the democratization of Cuba]. Havana City, Jan. 22.

52. Stusser RJ (2015) Cuba-United States academic exchanges: Personal experiences in the health sector in Cuba, 1962-2009, and the US 2010-2015. Cuba in Transition 25-325-334.

53. Stusser RJ (2015) [Involution of healthcare quality in Cuba 1959-2015. The distorted perception created in the US academy by the PAHO/WHO. Exposition and questions/answers' youtube.com videos]. Cuban-American Cultural Congress in UM ICCAS, Dec 6.

54. Engelhardt Jr HT (1996) Rights to health care, social justice, and fairness in health care allocations: Frustration in the face of finitude. In HT Engelhardt Jr (Ed.), The foundations of bioethics (2nd ed., pp. 375-410). New York: Oxford University Press.

55. Mansourian BP (2004) Global perspectives in health. In Medical Sciences Chapter. Encyclopedia of Life Support Systems, eds. BP Mansourian, A Wojtezak, Mahfouz SM. Oxford: UNESCO-EOLSS Publ.

56. Brown CJ, Lago AM (1991) The politics of psychiatry in revolutionary Cuba. New Brunswick: Transaction Publ.

57. Singleton M (2018) Federal Involvement in medical care is not the American way. J Am Physicians Surgeons 23:81-85.

58. Maltsev YN 2011 Lessons from Soviet medicine. J Am Physicians Surgeons 16:47-51.

59. World Health Organization (1946) Definition of health. Preamble to the constitution of the World Health Organization. In: International health conference, New York: WHO, 19-22 Jun.

60. United Nations (1948) Universal declaration of human rights. Paris: UN General Assembly, Dec. 10.

61. United Nations (1954) Report on international definition and measurement of standards and levels of living. New York: UN Publ. (Doc. E/CN.5/299).

62. United Nations (1961) International definition and measurement of levels of living. An interim guide. New York: UN Pub. (Doc. E/CN.3/270 Rev. 1 E/CN.5/353).

63. Romeu JL (2007) Statistical thinking and data analysis: Enhancing human rights work. In eds. J Asher, D Banks, FJ Scheuren, Statistical methods for human rights (1st ed). New York: Springer Publish Co. pp. 65-85

64. World Health Organization (2006) Neonatal and perinatal mortality. Country, regional, and global estimates. Geneva: WHO.

65. Ohsfeldt RL, Schneider JE (2006) The business of health. The role of competition, markets, and regulation. Washington, DC: AEI Press.

66. Mather CD, Sadana R, Salomon JA, Murray CJ, Lopez AD (2000) Estimates of DALE for 191 countries: methods and results. EIP Discussion Paper No.16. Geneva: WHO.

67. GBD 2017 DALYs and HALE Cols (2018) Global, regional, and national disability-adjusted life-years (DALYs) for 359 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet 392(10159):1859-1922.

68. GBD 2017 Mortality Cols (2018) Global, regional, and national age-sex-specific mortality and life expectancy, 1950-2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet 392(10159):1684-1735.

69. Woolf SH, Schoomaker H (2019) Life expectancy and mortality rates in the United States, 1959-2017. JAMA 322(20):1996-2016.

70. Cuba's Health Statistics Bureau (2021) Annual health statistics reports printed & online, 1959-2019]. Habana: MINSAP, 2010-2020.

71. National Center for Health Statistics (2019) Health, United States, 1975-2018. Hyattsville: NCHS.

72. World Bank (2021) World development indicators. Data catalog. Washington, DC.

73. World Health Organization (2020) World health statistics 2005-2019: Global health observatory data. Geneva: WHO.

74. Clark G (2007) A farewell to alms: A brief economic history of the world. Princeton: Princeton University Press.

75. Costa D (2015) Health and the economy in the United States, from 1750 to the Present. J Econ Lit 53(3):503-70.

76. Sanchez JR (2015) The double life of Fidel Castro: My 17 years as personal bodyguard to el lider maximo. New York: St. Martin's Press.

77. Andrew C, Mitrokhin V (2006) The world was going our way: The KGB and the battle for the third world. New York: Basic Books.

78. University of California-Berkeley/Max Planck's Institute for Demography Research (2020) Human mortality and life tables databases, 1800-2018.

79. Sachs JD (2005) The end of poverty: Economic possibilities for our time. New York: Penguin Books.

80. US Bureau of the Census (1975) Historical statistics of the United States, colonial times (1610) to 1970. Bicentennial ed. parts1 and 2. Washington, DC: Government Printing Office.

81. Hanson C (2010) Data on Maternal Mortality. Historical information compiled for 14 countries (up to 200 years). Stockholm: The Gapminder Foundation.

82. Bolt J, van Jaden JL (2020) Maddison style estimates of the evolution of the world economy. A new 2020 update.

83. Hamilton PM (1987) The rise and fall of the great powers: Economic change and military conflict from 1500 to 2000. New York: Vintage Books.

84. Landes DS (1999) The wealth and poverty of nations: Why some are so rich and some so poor. New York: WW Norton & Co.

85. Coppedge M, Gerring J, Knutsen CH, Lindberg SI, Teorell J, Alizada N, et al. (2021) V-Dem [Country-Year/Country-Date] Dataset v11.1" Varieties of Democracy (V-Dem) Project. https://doi.org/10.23696/vdemds21.

86. United Nations (2008) Demographic yearbooks 1948-2005. 1st-57th Issues. UN Pub.

87. United Nations (2009) Statistical yearbooks 1948-2008. 1st-53rd Issues. UN Pub.

88. Jacobson TW, Johnston R, Eberstadt N (2020) Abortion statistics and other data. Historical abortion statistics by country.

89. United Nations Children's Fund. (2019) Child and maternal health annual printed & online, 1950-2019. New York: UNICEF.

90. Organization for Economic Co-operation and Development (2020) Health statistics, 1961-2019.

91. Freedom House (2021) Global and internet freedoms in the World: Country and territory ratings and statuses, 1972-2020.

92. Heritage Foundation (2021) Indexes of economic freedom. Country rankings. WCAS, 1995-2020.

93. United Nations Development Program (2019) Human development reports printed & online, 1985-2018. New York: UNDP Publ.

94. Nelson L (1972) Cuba: The measure of a revolution. Minneapolis: University of Minnesota Press.

95. Rummel RJ (1998) Statistics of democide: Genocide and mass murder since 1900. Table 15.1B (Cuba).

96. Leyva de Varona A (2001) Cuba: assessing the threat to US security: [a report]. Endowment for Cuban American Studies.

97. Perez-Riverol A (2016) Cuban biotechnology: more than a boom. On Cuba News Aug. 17.

98. Cereijo M (2002) [Lourdes Base or Bejucal Base?] Cubanet Jun. 12.

99. Hughes TP (2004) American genesis: A century of invention and technological enthusiasm, 1870-1970. Chicago: The University of Chicago Press.

100. Schwab K (2016) The fourth industrial revolution. New York: Crown Business.

101. Foucault M (1973) The birth of the clinic; an archeology of medical perception, 1963. New York: Pantheon Books.

102. Langford EA (1964) Medical care costs for the aged: First findings of the 1963 survey of the aged. Social Security Bull July:3-8.

103. Sowell T (2009) The economics of medical care. In T. Sowell (Ed.), Thinking beyond stage one (1st ed). New York: Basic Books. pp. 53-94.

104. Dickey RA (2014) The affordable care act: Ethically right for our wealthy nation's health. N C Med J 75(2):151.

105. Le Fanu J (2000) The rise and fall of modern medicine. New York: Carrol & Graf Publ., Inc.

106. Foss L (2002) The end of modern medicine. Biomedical science under a microscope. Albany: SUNY Press.

107. Papanicolas I, Woskie LR, Jha AK (2018) Health care spending in the United States and other high-income countries. JAMA 319(10):1024-1039.

108. Organization for Economic Co-operation and Development (2019) Social expenditure database, 2018. http://www.oecd.org.

109. Arrow KJ (2001) Uncertainty and the welfare economics of medical care. 1963. J Health Polit Policy Law 26(5):851-883.

110. Gruenberg EM (2005) The failures of success. 1977. Milbank Mem Fund Q Health Soc 55(1):3-24.

111. Wilson RW (1981) Do health indicators indicate health? AJPH 71(3):290-293.

112. Breslow L (2006) Health measurement in the Third Era of Health. AJPH 96(1):17-19.

113. Klugman J, Rodríguez F, Choi H-I (2011) The HDI 2010: new controversies, old critiques. Human Dev Res Paper 2011/01. New York: UNDP.

114. Stusser RJ (2011) Research challenges of primary care medicine progress. Working Paper, Miami. https://www.researchgate.net/publication/344468034_Research_challenges_of_primary_health_care_medicine_progress.

115. Vogenberg FR (2019) US healthcare trends and contradictions in 2019. Am Health Drug Benefits 12(1)40-47.

116. Ginsburg NS (1961) Atlas of economic development. Chicago: University of Chicago Press.

117. Elder A (2017) The red Trojan horse: A concise analysis of cultural Marxism. Kindle Edition.

118. Wiggershaus R, Robertson M. (1995) The Frankfurt School: its history, theories, and political significance. Cambridge, MA: The MIT Press.

119. Adamson WL (1980) Hegemony and revolution: Antonio Gramsci's political and cultural theory. Berkeley: University of California Press.

120. Neumann F, Marcuse H, Kirchheimer O, Laudani R (2013) Secret reports on Nazi Germany: The Frankfurt School contribution to the War effort. Princeton: Princeton University Press.

121. Marcuse H (1955) Eros and civilization. A philosophical inquiry into Freud. Boston: Beacon Press.

122. Marcuse H (1964) One-dimensional man. Studies in the ideology of advanced industrial society. Boston: Beacon Press.

123. Wolff RP, Moore Jr B, Marcuse H (1965) A critic of pure tolerance. Boston: Beacon Press.

124. Gross PR, Levitt N, Lewis MW (1996) The flight from science and reason. Baltimore: Johns Hopkins University Press.

125. Griffiths R (2018) Political correctness: Dyson and Goldberg vs. Fry and Peterson: The Munk debates. Toronto: House of Anansi Press Inc.

126. Haynes J, Khler H (2003) In denial: Historians, communism, and espionage. San Francisco: Encounter Books.

127. Horowitz D (2007) Indoctrination U: the left's war against academic freedom. New York: Encounter Books.

128. Lohmeier M (2021) Irresistible revolution: Marxism's goal of conquest & the unmaking of the American military. Kindle Edition.

129. von Hayek FA (1952) The counter-revolution of science: studies on the abuse of reason. Glencoe: Free Press.

130. von Hayek FA (2007) The road to serfdom: Texts and documents. Chicago: University of Chicago Press.

131. Galbraith JK (1966) The new industrial state. London: The Listener.

132. Buchanan JM, Wagner RE, Burton J (1978) The consequences of Mr. Keynes. Hobart, Paper 78. The Institute of Economic Affairs.

133. Buchanan JM (2003) Public choice: Politics without romance. Policy 19:13-18.

134. Kuehnelt-Leddihn E (2012) Does the right need an ideology? Crisis Magazine. March 26.

135. Biebricher T (2018) The political theory of neoliberalism. Stanford: Stanford University Press.

136. Krugman P (2020) Arguing with zombies: economics, politics, and the fight for a better future. New York: WW Norton & Co.

137. Friedman M, Friedman R (1990) Free to choose: a personal statement. Orlando: A Harvest Book-Harcourt, Inc.

138. Friedman M (1993) Why government is the problem. (Essays in public policy, no. 39). Stanford: Hoover Institution Press, Stanford University.

139. Biggart JH (1971) Cnidos v. Cos. Ulster Med J 41(1):1-9.

140. Kass LR (1975) Regarding the end of medicine and the pursuit of health. Public Interest 40(2)11-42.

141. Engel GL (1992) How much longer must medicine's science be bound by a seventeenth century world view? Psychother Psychosom 57(1-2):3-16.

142. Asch DA, Volpp KG (2012) What business are we in? The emergence of health as the business of health care. NEJM 367: 888-889.

143. McWhinney IR (1986) Are we on the brink of a major transformation of clinical method? CMAJ 135: 873-878.

144. Norris TE, Fuller SS, Goldberg HI, Tarczy-Hornoch P (2002) Informatics in primary care. Strategies in information management for the healthcare provider (1st ed.). New York: Springer Verlag.

145. Stusser RJ (2004) Voices from Bangkok to Mexico. Reflections by participants in the Bangkok Conference 2000 on health research for development. In Pre-Mexico Summit report on health research, ed. Council on Health Research for Development. Geneva: COHRED.

146. Stusser RJ, Dickey RA, Rodriguez A (2004) Primary care and family medicine ehealth research to help achieve the millennium development goals, e-letter. AFM (5 June). http://www.annfammed.org/cgi/eletters/2/suppl_2/s2#800.

147. Mold JW, Peterson KA (2005) Primary Care Practice-Based Research Networks: Working at the Interface Between Research and Quality Improvement. AFM (3 July). https://www.annfammed.org/content/3/suppl_1/S12/tab-e-letters#other-challenges-for-the-phc-rd-and-pbrns-in-developing-countries.

148. Stusser RJ, Rodriguez, A. (2006) [The informatization of primary health care]. Rev Cub Med Gen Integral 22(4).

149. Stusser RJ, Albert MJ, Rodriguez A, Echevarria S, Gonzalez RI, Cuadot A (2006) [Vedado Project: electronic health in primary health care. Design and initial results]. Rev Cub Med Gen Integral 22(4).

150. Engelhardt Jr HT, Spicker SF, Towers B (Eds) (1979) Clinical judgment. A Critical appraisal. Dordrecht: D. Reidel Publ.

151. Feinstein AR (1987) Clinimetrics. New Haven: Yale University Press.

152. Hollnagel H, Malterud K (1995) Shifting attention from objective risk factors to patients' self-assessed health resources: a clinical model for general practice. Fam Pract 12: 423-429.

153. Callahan D (1996) The goals of medicine. Setting new priorities. Hastings Cent Rep 26: S1-27.

154. Stusser RJ (1999) RES6/466: Toward a discovery support system based on medical and health unifying principles to formulate recombinant hypotheses through Internet online databases. J Med Internet Res 1(suppl1): e81.

155. Stusser RJ (2006) Reflections on the scientific method in medicine. In Medical sciences chapter. Encyclopedia of life support systems, eds. BP Mansourian, A Wojtczak, SM Mahfouz. Oxford: UNESCO-EOLSS Publ.

156. Backer P, Kragh PL, Mabeck CE, Rasmussen KB, Gaugin J (Eds) (1977) [Textbook of General Medicine 2, Basis Book 1]. Copenhagen: FADL's Publ.

157. Merrel M, Lowell JR (1949) The epidemiology of health. In I Galdston (Ed), Social Medicine. Its Derivation and Objectives (1st ed.). The New York Academy of Medicine, Institute of Social Medicine, 1947. New York: The Commonwealth Fund.

158. Galdston I (1953) The Epidemiology of Health. In I Galdston (Ed) The Epidemiology of Health (1st Ed.) A New York Academy of Medicine Book. New York: Health Education Council. New York: pp. 1-7

159. Jahoda M (1958) Current concepts of positive mental health. New York: Basic Books.

160. Singer BH, Ryff CD (2001) New horizons in health: an integrative approach. National Research Council US Committee on Future Directions for Behavioral and Social Sciences Research at the NIH. Washington, DC: National Academy Press.

161. Seligman MEP (2018) The hope circuit. A psychologist's journey from helplessness to optimism. New York: Public Affairs.

162. Belloc NB, Breslow L (1972) Relationship of physical health status and health practices. Prev Med 1: 409-421.

163. Burns CR (1975) Diseases versus healths: Some legacies in the philosophy of modem medical science. In HT Engelhardt Jr, SF Spicker (Eds), Evaluation and explanation in the biomedical sciences (1st ed.). Boston: D. Reidel Pub. Co. pp. 29-47.

164. Nordenfelt LY (1995) On the nature of health. An action-theoretic approach. (2nd ed). Dordrecht: Kluwer Academic Publ.

165. Miotto R, Li L, Kidd BA, Dudley JT (2016) Deep Patient: An unsupervised representation to predict the future of patients from the electronic health records. Sci Rep 6: 26094.

166. Shickel B, Tighe PJ, Bihorac A, Rashidi P (2018) Deep EHR: A survey of recent advances in deep learning techniques for electronic health record analysis. IEEE J Biomedical Health Inform 22: 1589-1604.

167. Institute of Medicine (2001) Health and Behavior: The Interplay of Biological, Behavioral, and Societal Influences. US Committee on Health and Behavior: Research, Practice, and Policy. Washington, DC: National Academies Press.

168. West BJ (2006) Where medicine went wrong: Rediscovering the path to complexity. Singapore: World Scientific.

169. Liaw W, Kakadiaris IA (2020) Primary care artificial intelligence: a branch hiding in plain sight. AFM 18(3):194-195.

170. Kleinrock L (2019) Fifty years of the internet. What we learned, and where we will go next? Mar 18. Techcrunch.com

171. Stusser RJ (2008) Clinical discoveries, randomized controlled trials and surveys, e-letter. AFM (Feb. 24). https://www.annfammed.org/content/6/1/3/tab-e-letters#clinical-discoveries-randomized-controlled-trials-and-surveys.

172. Stusser RJ (2009) Reintegration could also involve the improvement of the truncated clinical method, e-letter. AFM (Mar. 23) http://www.annfammed.org/content/7/2/100.full/reply#annalsfm_el_10704.

173. Stusser RJ (2009) Neglected virgin areas in primary health care basic and applied research, e-letter. BMJ (Nov. 20). https://www.bmj.com/content/339/bmj.b4810/rapid-responses.

174. Matthews JR (1995) Quantification and the quest for medical certainty. Princeton: Princeton University Press.

175. Robinson JC (2001) The end of asymmetric information. J Health Polit Policy Law 26: 1045-1053.

176. Berdine G (2017) Uncertainty and the welfare economics of medical care: Austrian rebuttals parts 1 and 2. SW Resp Critical Care Chron 4(16): 57-61, 5(17):63-67.