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Book Reviews

Book Review: "Survival: A Story of Global Health"

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In *Survival: A Story of Global Health*, Igor Rudan offers an ambitious synthesis of humanity's biological, epidemiological and civilisational journey, framed through the unifying lens of survival. The book is at once a scientific narrative, a historical reflection and a personal intellectual memoir. It weaves together evolutionary biology, infectious disease epidemiology, demographic transition, and the institutional architecture of modern global health. It seeks to answer an elemental question: how has our species persisted against the overwhelming odds that extinguished most life forms that ever existed?

What emerges is a work that sits comfortably at the interface between popular science and scholarly reflection. Rudan's central thesis is that global health is best understood as the organised defence of human survival. It provides a conceptual scaffold strong enough to accommodate topics ranging from childbirth mortality to pandemics, from microbiomes to ageing, and from vaccination systems to the geopolitics of international health governance.

The opening chapters situate humanity within deep evolutionary time. Rudan reminds readers that more than 99% of species that have lived are now extinct, placing human survival in stark probabilistic perspective. This framing device is methodological: by embedding global health within evolutionary contingency, the author reframes modern public health achievements such as sanitation, vaccines, and antibiotics as extensions of ancient survival strategies, rather than recent technical conveniences. Such long-term perspective is one of the book's greatest strengths. It allows Rudan to move fluidly between planetary threats such as meteor strikes, climate shifts, ecological pressures, as well as biological ones, particularly infectious diseases. The effect is to dissolve disciplinary silos: epidemiology becomes inseparable from anthropology, demography and evolutionary biology.

The narrative voice is accessible, yet authoritative. Rudan writes with pedagogical clarity, often posing deceptively simple questions, such as: Why are we the only surviving human species? What truly kept us alive? Then, he unpacks complex, evidence-based answers. This Socratic method broadens the book's reach beyond specialists, while preserving its intellectual depth. A defining pivot occurs as the book narrows from species survival to reproductive survival. The chapter "Women and children first" is among the most powerful, reframing maternal and child health as the evolutionary bottleneck of humanity. Rudan juxtaposes the joy surrounding childbirth in wealthy societies with the persistent lethality of delivery in low-resource settings, where lack of sterile environments, skilled attendants and emergency obstetric care continues to claim hundreds of thousands of maternal lives. The argument is both moral and epidemiological: safe childbirth is presented as more than a clinical service – it is also seen as a foundational human right and a prerequisite for species continuity. The discussion of child mortality is particularly rich. Rudan traces how late-20th-century epidemiological synthesis revealed pneumonia and diarrhoeal diseases, which were long neglected in funding and research, as leading killers of children worldwide. The analytic shift from what children died of, to when they died, especially the concentration of mortality in the neonatal period, illustrates how measurement innovations reshape policy priorities. This section exemplifies Rudan's method: combining historical literature synthesis, epidemiological modelling and policy translation into a single narrative arc.

Perhaps the most conceptually elegant chapters are those devoted to microbes. Rudan resists the simplistic pathogen-centric framing of infectious disease, instead presenting microorganisms as both existential threats and indispensable symbionts. The human microbiome is portrayed as an evolutionary alliance: trillions of microbes colonising skin and gut, shaping immunity and metabolism. By balancing this "invisible friends" paradigm against case studies of malaria, tuberculosis and HIV/AIDS, the book underscores the ecological complexity of host-pathogen coexistence. These disease vignettes are concise, yet historically textured, as they range from the Nobel-recognised discoveries of malaria transmission to the global mortality burden of HIV. Rudan's epidemiological literacy is evident in his ability to compress vast literatures into digestible narratives without distorting scientific nuance. Importantly, he situates biomedical advances, such as antiretrovirals, bed nets, and vaccines, within financing architectures such as the Global Fund and PEPFAR, illustrating how survival depends as much on political economy as on laboratory science.

The historical panorama of pandemics is among the book's most gripping sections. Rudan catalogues successive waves of plague, smallpox, influenza and cholera, reminding readers that catastrophic mortality was once the norm rather than the exception. By tracing epidemics from the Plague of Athens through the Black Death to the 1918 influenza pandemic, he reconstructs humanity's epidemiological memory. This is a memory that, he argues, is fading dangerously in the antibiotic and vaccine era. Particularly compelling is the treatment of microbial evolution and an-

tibiotic resistance. Rudan frames antimicrobial overuse as an ecological experiment that may yet compromise modern survival gains, unless new antibiotics can be developed more quickly. He also explores biosecurity risks arising from genetic engineering of pathogens, extending the survival discourse into the domain of dual-use biotechnology. Written before COVID-19 but eerily prescient, these chapters read today as both warning and prophecy: humanity's apparent safety from infectious disease is conditional and reversible.

Rudan next guides readers through the epidemiological transition, i.e., the shift from infectious to non-communicable diseases (NCDs) as dominant mortality drivers. Cardiovascular disease, diabetes, cancer and chronic respiratory illness are framed as consequences of longevity itself: degenerative failures of organ systems worn by time and behaviour. The metaphor of NCDs as "private diseases" is rhetorically effective, highlighting their endogenous origins while acknowledging shared risk environments. The book excels in explaining pathophysiology without technical opacity – from atherosclerosis to insulin dysfunction and carcinogenesis - always tethered to population-level implications. Particularly salient is the concept of the "double burden" in low- and middle-income countries, where infectious and chronic diseases coexist, straining health systems designed for acute care. Here, Rudan's policy instincts surface strongly. He interrogates why global urgency mobilises rapidly against pandemics yet hesitates around NCDs, pointing to possible vested interests and political inertia.

One of the book's most philosophically ambitious sections addresses ageing and death. Rudan does not treat them as inevitabilities, but rather as solvable biological problems, extensions of humanity's survival project. He surveys telomere biology, genomic mutation accumulation, oxidative stress, stem-cell reprogramming and CRISPR gene editing as scientific pathways toward lifespan extension. The tone here shifts from historical to speculative, though always anchored in empirical discovery, including Nobel-recognised breakthroughs. What distinguishes this discussion from transhumanist futurism is its evolutionary framing. Rudan asks whether ageing may be adaptive at the species level, enabling generational turnover and environmental adaptation. The ethical questions that follow, which include those on who decides on lifespan modification, and on what grounds, are managing to broaden the survival discourse into bioethics and governance.

The latter sections transition into institutional history, mapping the emergence of global health governance. From the founding of the World Health Organization and UNICEF in the post-World War II reconstruction era to later proliferations of NGOs, philanthropic foundations and public-private partnerships, Rudan portrays global health as an increasingly crowded ecosystem. The eradication of smallpox stands as the field's emblematic triumph, a proof that coordinated global action can eliminate ancient killers. But his narrative is not triumphalist. Economic stagnation, institutional rivalries and shifting political priorities complicate the governance landscape. By interweaving organisational history with programmatic case studies, Rudan demonstrates that survival at planetary scale requires not only science but diplomacy, financing and collective goal-setting.

The book's second part contains autobiographical reflections on Rudan's career in global health, and it functions as a memoir, but also a useful guide to those who want to enter this field, as well as the mirror for the maturation of global health itself. His transition from genomics to population health, leadership in child mortality estimation, and development of priority-setting tools such as CHNRI, EQUIST and PATHS, illustrate the methodological evolution of the field toward evidence-based investment decisions. These chapters provide rare insight into the epistemic machinery behind global estimates: how data gaps are filled, how consensus is built, how policy tools are engineered. For scientific readers, this insider perspective is among the book's most valuable contributions.

Stylistically, Survival occupies a productive middle ground between academic monograph and public science writing. Rudan always favours clarity over jargon and analogy over abstraction. Complex biological mechanisms are rendered through metaphors: genomes as libraries, mutations as transcription errors, in which way the text illuminates without oversimplifying. At times, the didactic tone may feel overly directive for specialist audiences. Yet this stance is integral to the book's mission: translating global health science into civilisational literacy. The structural bifurcation, which jumps from a species narrative to a personal career, is quite unconventional, but also highly effective. It grounds macro-level survival theory in lived scientific practice. The book's principal contribution lies in conceptual integration. Rather than treating maternal health, pandemics, NCDs and ageing as discrete agendas, Rudan situates them along a single survival continuum. This integrative lens has practical implications. It reframes health investment as species preservation strategy, rather than a humanitarian expenditure. That is a perspective that could reshape policy prioritisation in an era of climate instability, antimicrobial resistance and emerging pathogens. Moreover, by embedding institutional histories within biological narratives, Rudan underscores that global health progress is contingent: it is dependent on sustained cooperation and political will.

No synthesis of this breadth escapes some limitations. Some thematic areas, such as mental health, environmental degradation beyond infectious risk, and health inequities within high-income countries, received comparatively brief treatment. The futurist discussions on immortality and genome rewriting, while intellectually stimulating, occasionally outpace the evidentiary restraint that characterises earlier chapters. Readers seeking rigorous bioethical analysis may find these sections more speculative than analytical. Yet these are minor imbalances within an otherwise cohesive work.

"Survival: A Story of Global Health" is a synthesis that recounts humanity's escape from extinction thus far, while warning that survival remains conditional. It is threatened by microbial evolution, chronic disease burdens, technolog-

ical misuse and governance failures. Rudan's achievement is to render global health legible as the central narrative of our species: our survival is a story that contains - in many important roles - pathogens and vaccines, childbirth wards, laboratories, demographic datasets, diplomatic assemblies, and many others. The book goes beyond a historical reflection, providing a conceptual framework for understanding why global health matters. It should not be viewed primarily as charity or development work, but as the organised expression of humanity's will to endure. In an era conscious of planetary fragility, Rudan's message resonates with renewed urgency: survival is neither guaranteed nor evenly distributed, but rather engineered by ourselves.

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