A local burial team at a children's hospital in Freetown, Sierra Leone, during the Ebola epidemic.

PUBLIC HEALTH

Beating Ebola

Peter Piot ponders two books on the epidemic that offer important lessons from an avoidable catastrophe.

The Ebola epidemic in West Africa was an unprecedented health crisis, causing more than 11,000 deaths and destabilizing three countries. It eventually mobilized a coalition of countries from the United States to China, as well as the African and European unions. Neither the nations most affected nor the international community were prepared for an epidemic of a highly lethal virus on such a scale. They had to learn on the fly: hands-on experience of Ebola outbreaks and patient care was scant. We now have a much larger body of experts and knowledge, which will be invaluable for preventing and controlling future outbreaks.

Two very different books on the epidemic have now emerged. Anthropologist Paul Richards' *Ebola* is an original account of how Sierra Leone in general, and 26 villages there in particular, interpreted the epidemic and wider responses to it, and acted on it at its peak. *Ebola's Message* has a broad interdisciplinary focus on West Africa's outbreak.

Ebola: How a People's Science Helped End an Epidemic

PAUL RICHARDS
Zed: 2016.

Ebola's Message: Public Health and Medicine in the Twenty-First Century

EDITED BY NICHOLAS G. EVANS, TARA C. SMITH & MAIMUNA S. MAJUMDER
MIT Press: 2016.

Covering aspects from media response to bioethics, it is edited by philosopher Nicholas Evans, molecular epidemiologist Tara Smith and computational epidemiologist Maimuna Majumder.

Ebola's focus on the comparatively poorly documented role of local responses to the epidemic makes it a must-read for all involved in epidemics, epidemiology and public health. It is an important counterweight to analyses by international panels, including one convened by the London School of Hygiene and Tropical Medicine and the Harvard Global Health

Initiative, which I chaired. These have focused on institutional aspects and global governance. As the ongoing outbreaks of Zika in the Americas and yellow fever in central Africa show, concerted action — local as well as global — is crucial.

Richards wisely nods to the key role of national and international epidemic control. But his central thesis is that rapid local adaptation and common sense led to the Ebola epidemic's downturn. He terms this community action a "people's science" of Ebola control. The book abounds with real-life examples from his long-term research in Sierra Leone.

Richards bases his analysis of how villagers coped on two concepts. Sociologist Émile Durkheim's social-paradigm theory posits that belief is shaped by social action — in this case, collective emergency response. Durkheim held that it is not enough to "pump knowledge into the heads of affected populations" to prompt behaviour change. (That classic public-health approach has failed repeatedly, from HIV prevention to overcoming immunization refusal and controlling obesity.) The second concept is sociologist Marcel Mauss's "techniques of the body" — the idea that our physical actions, such as hygiene practices, are culturally determined.

Burials during the epidemic revealed how these theories played out. Funerals carry great meaning in West Africa: they are moments for honouring the dead, remembering that life is finite or resolving disputes. They also involve rituals such as washing the deceased — one of Mauss's techniques of the body. Locals unaware of the risks from infected corpses unwittingly helped to spread the disease. As Richards notes, such circumstances require urgent community dialogue at the start of an outbreak to find a way to control the risk but retain social meaning; training in safe burial techniques is also needed. But he also found that, as in Durkheim's theory, some villagers formed their own evidence-based appraisals of the risks of infection, and demanded to be trained in safe procedures. That approach became a model for rapid action within complex community structures and traditions.

Richards states that "better-functioning health systems might only have made the epidemic worse". That is not so outrageous. Middle East respiratory syndrome spread in South Korea when patients moved from one hospital to another; people congregating in hospitals and intensive care units can amplify a virus's spread.

Richards is ultimately optimistic, stating that the epidemic revealed an unexpected capacity for communities and professional responders to discover jointly the nature of the threat. What is less clear to me in *Ebola* is how long it takes to change traditional unsafe practices in emergency conditions, and how replicable Richards' encouraging observations are outside West Africa.

Some of the key points in *Ebola's Message* echo those of Richards' book, such as the need to go beyond classic epidemiological and biomedical approaches. I was inspired by the editors' stated ethos of striving to understand and value the work of others. The contributors, however, are largely American, as are the perspectives on the politics of Ebola, the media response and the absurdity of US quarantine. Richards, by contrast, shows that local quarantine was not new to the villages he studied, which have used it for goat plague and historically for smallpox. In 1976, my colleagues and I saw this in the first known outbreak of Ebola, in Yambuku in what is now the Democratic Republic of the Congo (DR Congo).

Médecins Sans Frontières (MSF) has been the main non-governmental responder in all Ebola outbreaks in DR Congo since 1995. In *Ebola's Message*, MSF public-health specialist Armand Sprecher offers a candid, sobering essay that reflects on the group's failure to partner with locals to control epidemics. He stresses the importance of skilled managers over doctors, who may have managerial skills only "by chance". Indeed, epidemic control is about logistics and coordination.

The final essays deal with challenging ethical issues. They are particularly relevant for clinical research in highly lethal epidemics. They provide balanced perspectives for deep disagreements on the ethics of trial design; the tension between trials, outbreak control and patient care; and the use of experimental interventions in epidemic times.

To fight the next epidemic, as Sprecher writes, it will be crucial to apply these lessons, capitalize on partnerships and hold institutions to their promises of funding and cooperation. And, as Richards mentions, it will also be key to consolidate ways of working effectively with local communities, and to recognize their work. This advice demands a major shift in the mindset of epidemiologists.

A similarly devastating Ebola epidemic is unlikely to develop. But others will. The 'big one' will hit, potentially causing a crisis on the scale of the 1918–19 Spanish influenza pandemic, which killed more than 50 million people. Some will argue that HIV/AIDS is that pandemic: albeit slowly, it has felled more than 30 million people since the early 1980s and is ongoing. Growing mobility, demographic pressure, economic and agricultural development, climate change and environmental degradation increase the risk from such zoonotic diseases. As these two books demonstrate, we need to learn from history to avoid repeating our mistakes. ■

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Books in brief

ADHD Nation

Alan Schwarz SCRIBNER (2016)

Some 15% of US children have been diagnosed with attention deficit hyperactivity disorder (ADHD). Journalist Alan Schwarz is sceptical about that incidence and the powerful pharmaceuticals prescribed for the condition, calling ADHD "the most misdiagnosed condition in American medicine". His nimble investigation interweaves the narratives of pharmaceutical companies with those of child psychologist Keith Conners, who led ADHD's 'Manhattan Project', and young people grappling with the medical fallout. An intriguing sidelight is the misuse of ADHD drugs as performance enhancers.

The Edge of Reason: A Rational Skeptic in an Irrational World

Julian Baggini YALE UNIVERSITY PRESS (2016)

Humanity has lost its reason, asserts philosopher Julian Baggini: many trust gut feelings and received wisdom, decrying rationality as "a cold tool of desiccating logic". Baggini reveals it as anything but. Debunking myths such as the idea that reason is purely objective, he reminds us how reason actually functions in diverse arenas. Thus science, although hyper-rational and data-ruled, integrates the mess of guesswork and inspiration. And a rational stance in politics demands that we embrace complexities — in debate, difference and diversity. A thoughtful analysis for hyper-emotional times.

Einstein's Greatest Mistake: The Life of a Flawed Genius

David Bodanis LITTLE, BROWN (2016)

In 1915, Albert Einstein created a masterpiece: the equation at the core of his general theory of relativity. Its profound implications for many aspects of physics are assured. But, argues science writer David Bodanis, Einstein's confidence and intuitive brilliance tipped over into hubris in the quantum debate, when he found himself ranged against the likes of Niels Bohr. This is a sympathetic appraisal of Einstein's intellectual development. But however wrong the old revolutionary was about the new thinking, hanging a full biography off such a weighted title seems a little tendentious.

Something in the Blood

David J. Skal LIVERIGHT (2016)

The vampire, a cultural trope that crept bloodily along for centuries, has finally achieved ubiquity in film, television and fiction. Yet the man who embedded the archetype remains an enigma. Cultural historian David Skal reveals Bram Stoker, author of *Dracula* (1897), as a figure marked by childhood paralysis (which may have involved blood-letting) and maturation in an era of epidemics, famine and a titanic tug-of-war between science and spiritualism. Stoker's opus emerges as a psychological reading of the age — a "veritable Rosetta Stone of Victorian anxieties", as Skal puts it.

Calculating the Cosmos: How Mathematics Unveils the Universe

Ian Stewart PROFILE (2016)

Mathematician and prolific writer Ian Stewart turns a lens on how maths has helped us to decipher the celestial. As space probes explore new ground from asteroids to regions beyond the heliopause, Earth-based number-crunching informs everything from Jupiter's asteroid-pitching tendencies, the behaviour of planetary rings and the stubborn shyness of dark matter to the 'interplanetary superhighway' that provides efficient routes between planets. A fascinating tour, seamlessly spliced and historically contextualized. [Barbara Kiser](#)