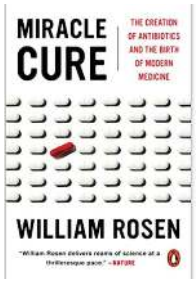
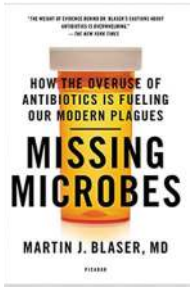
Book Reviews

David A. Bennahum, MD, and Jack Coulehan, MD, Book Review Editors



Miracle Cure: The Creation of Antibiotics and the Birth of Modern Medicine

William Rosen
Penguin Random House, May 8, 2018
368 pages



Missing Microbes: How the Overuse of Antibiotics is Fueling Our Modern Plagues

Martin J. Blaser, MD (ΑΩΑ, New York University School of Medicine, 1996)
Picador, February 3, 2015
288 pages

Reviewed by Elaine Thomas, MD

Antibiotics: Life-saving miracles? Dangerous disruptors? Or both?

Growing recognition of both bacterial antibiotic resistance and the importance of microbiomes to health has engendered a spate of popular-press books.

Miracle Cure is a highly readable history of medicine's fight against bacterial infections, starting with the classic experiments—and colorful personalities—of Pasteur, Fleming and other 19th century microbiologists, that engendered one of the first drug classes that actually saved sick people. Much of the book tells the less familiar story of the rapid invention, development, and marketing of antibiotics throughout the 20th century.

William Rosen's experience in writing well-researched non-fiction and his engaging style drive the story while allowing for fascinating asides that will send readers to further exploration. For example, it is not enough to invent an antibiotic; it must be producible at industrial scale. Penicillin production was agonizingly sparse until a laboratory technician, dispatched to search food markets, found a rotting cantaloupe with a super-productive strain of *Penicillium* mold, jump-starting an industry.

Miracle Cure focuses not only on bacteriology, but on the rise of clinical research and the pharmaceutical industry, as shaped by money, law, rivalry, cooperation and sometimes ethics. The convoluted progress of development, regulation and overuse are both inspiring and cautionary, as science is not always foremost in the medical industry. The book ends by discussing efforts to promote appropriate antibiotic use and development of new drugs in the face of increasing bacterial resistance.

In *Missing Microbes*, infectious disease physician-scientist Martin Blaser reviews the growing understanding of the microbiome—all the micro-organisms that live in and on humans and other macro-organisms, our "ancestral bacterial heritage." These microbial communities have co-evolved with their hosts and therefore may be important to our healthy functioning.

What are the impacts of widespread use of "miracle cure" antibiotics on our microbiome? Why does administration of antibiotics cause livestock (and possibly people) to grow larger and fatter? Why is birth by Cesarean section, bypassing the vaginal microbiome, associated with several adverse health conditions? Why is infection with Helicobacter pylori associated with increased risk of gastric ulcers but protection from esophageal cancer?

Blaser reviews many observations as well as his own research attempting to elucidate how antibiotics affect our symbiotic co-travelers. He postulates that our indiscriminate use of antibiotics in human medicine and livestock feed is damaging finely honed relationships that we don't yet understand, and possibly contributing to the increased prevalence of modern ailments such as type 2 diabetes, obesity, celiac disease, and asthma.

What might happen if we drive some of our undiscovered but important bacterial species to extinction? Studies in this young science are exciting but maddeningly preliminary. Many studies show associations of microbiome perturbation with adverse health effects, but confounding factors abound, and Blaser's conclusions sometimes run ahead of the data. However, rapid developments in our ability to survey microbial communities in detail will provide answers—and more questions.

Taken together, these two books provide a valuable overview of our efforts to learn how to live peaceably with the universe of microbes while harnessing the benefit of life-saving treatments for old and new infections.

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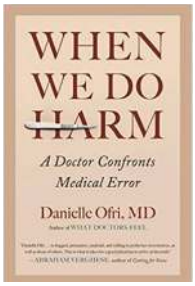

When We Do Harm: A Doctor Confronts Medical Error

By Danielle Ofri, MD

Beacon Press, Boston, 2020, 247 pages
Library of Congress Cataloging number
2019051595

Reviewed by David A. Bennahum, MD, DSc. (Hon) (AΩA, University of New Mexico School of Medicine, 1984)

Shocked by a 2016 article in the *British Medical Journal* (BMJ) and a corroborating 1999 report from the Institute of Medicine that concluded that medical error was the third leading cause of death in the United States, Danielle Ofri decided to see where in her practice she might have caused harm to her patients. She writes, "While the 'third leading cause of death' claim is likely an overstatement, there is definitely a yawning gap between the published statistics of medical error and the experience of the everyday clinician." p2

Ofri reviews the seminal articles in the history of medical error noting the observation by Lucian Leape (AΩA, Harvard Medical School, 1959) that "Errors must be accepted as evidence of system flaws not character flaws." p6

Ofri describes the successful effort to diminish central line infection through the use of a checklist, the work of Peter Provonost at Johns Hopkins Hospital in 2001. But it wasn't just checklists that changed physician behavior; it was changing rules and customs to empower nurses to speak up that improved central line care. Provonost observed that "in every hospital…patients die because of hierarchy." p12

The author recalls the sad story of Ignaz Semmelweis, the Hungarian physician who in 1846, prior to Pasteur, Lister, and Koch's work to prove that bacteria caused infection, was ridiculed and forced out of Vienna by the traditional medical hierarchy for his observations on Puerperal Sepsis that killed new mothers on the medical student staffed obstetrical wards, but not those giving birth on the nurse midwife staffed wards.

Florence Nightingale was more successful than Semmelweis:

> It is almost ironic that all five steps in Pronovost's checklist are present in Nightingale's formula for improving patient care. He used the word "sterile" where she used the word "clean," but otherwise her rules are essentially the same—wash hands, clean the patient's skin, use clean coverings for the patient, use clean clothing for the staff, cover the wound with a clean dressing. p19

All this from Nightingale who died in 1912, but never accepted the germ theory of disease. For her, disease was caused by poverty, filth, and neglect. Ofri writes, "There's also a thread that carries forward from the stories of Semmelweis, Nightingale, and Pronovost: pay attention to the nurses." p20

Having established the history and modern science of medical error, the author goes on through the medium of three stories: the clinical tragedies of two patients, Jay and Glenn; and one of her own, she explores how error can occur and enlarge to engulf and sweep away patients. Her technique of using patient stories, including her own, is both courageous and deeply moving.

Ofri follows a patient, whom she calls Jay, through his battle with acute myeloid leukemia (AML). Jay was an Annapolis graduate and a former naval aviator who was married to Tara, an experienced emergency room nurse. Their journey through high tech medicine was not easy:

> The terrifying truth is that when you or a family member gets sick—no matter how many friends and family are there for you, no matter how superb the medical team—you are still alone in a sea of uncertainty. p32

The critical issue for Jay was that when he might have survived by timely admission to an ICU, he was not transferred. Despite the urgent requests of his wife, the necessity for intensive care was not recognized by his physician. Why, remains a mystery but the pleas of his wife Tara, an emergency room nurse, were ignored. The author describes Tara's anguish, thus emotionally involving the reader in Tara's and Jay's tragedy.

In the second case Ofri writes about Glenn, who suffered an industrial accident and a severe burn. Glenn was not transferred from a smaller hospital to a regional burn center with the urgency that fluid loss in burn patients requires.

I was struck by how well Ofri details the physiology of each disease in both patients. The science enriches the emotional experience of reading about these cases. Ofri has a talent for clarifying the disease processes while not ignoring the humanity of the victims, the patients, the families, and the doctors and nurses.

The third case was painful to read about. It was one of her own, which reminded me of a similar mistake of inattention that I had made some years ago. Mrs. Romero had an anemia that was due to an unrecognized myeloma that

Ofri had somehow failed to workup. Ofri was about to embark on a year-long writing sabbatical and overlooked a low hematocrit in a seemingly well 69-year-old patient. She writes:

> Mrs. Romero's case has haunted me over the years. For doctors and nurses it's devastating to have missed a serious diagnosis and agonizing to contemplate the additional distress you've caused your patient above and beyond the illness itself. I wish I could rewind my brain those many years to figure out how I missed it. Had I been distracted? Was I running behind? Was I cutting corners to catch up? Was I willfully ignoring the lab data? Was I just having a bad day?[p40]

Ofri continues to examine her perceived failure, and discussed the case with Hardeep Singh (AΩA, Baylor College of Medicine, 1997, Resident), an internist from Houston who heads up the patient-safety initiatives at the VA hospital there and is an internationally known guru on medical error. Singh pointed out that diagnostic error is a completely different can of worms from procedural error (e.g., surgery on the wrong side of the body or infection from a central line) because diagnosis is a moving target. Singh defines diagnostic error as a missed opportunity to make a correct and timely diagnosis, even if the patient isn't harmed by the delay. The question is whether you could have done something different.[p40]

Ofri's comments on the electronic medical record (EMR) are also interesting. She writes:

> But in the EMR, the lab results are in one place, and the radiology results in another, and the consultation results are in a third place. This fragmentation of thinking is particularly dangerous when it comes to diagnosis, a process that, as we've seen, requires integration of information. The EMR conspires against integration by forcing information, as well as your flow of thought, into a rigid structure that is convenient for computer programmers and the billing department but not necessarily logical for anyone taking care of patients.
>
> There's no going back from the EMR, and I don't think that we should go back. The advantages of centralized medical information are substantial. But the consequences of the EMR—however unintended they may be—are equally substantial and have potent ramifications for medical care as well as medical error.[p85]

This book presents a fine exposition of decision-making in medicine. The author is an excellent writer who brought to life the questions that she asked. This book should interest all clinicians.

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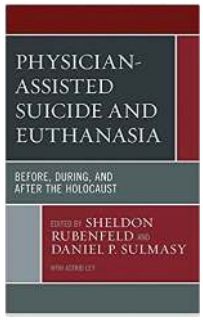

Physician-Assisted Suicide and Euthanasia: Before, During, and After the Holocaust

Edited by Sheldon Rubenfeld (AΩA, Georgetown University School of Medicine, 1971) and Daniel P. Sulmasy (AΩA, Weill Cornell Medical College, 1981)
358 pages
Lexington Books, November 3, 2020

Reviewed by Jack Coulehan, MD (AΩA, University of Pittsburgh, 1969)

Within the last two decades, legalized physician aid in dying (PAD) has gained remarkable traction in Western societies. After decades of unofficial tolerance of voluntary euthanasia in the Netherlands, the Dutch parliament legalized PAD in 2002. In relatively rapid succession, Belgium, Luxembourg, Spain, Canada, Western Australia, and Colombia followed suit, while Switzerland, Germany, Victoria (Australia), eight American states, and the District of Columbia moved to permit physician-assisted suicide (PAS) but not voluntary euthanasia. In every case, the legal argument for PAD was based on the right of a competent adult to make the decision about ending his/her life when faced with terminal disease or other intolerable suffering. More recently, some jurisdictions have considered extending availability of PAD to minor children and incompetent adults.

Modern proponents of PAD draw a line between the contemporary movement, which is firmly grounded in human rights language, and Nazi euthanasia programs of the 1930s and 1940s, which were based on a pseudoscientific version of eugenics. *Physician-Assisted Suicide and Euthanasia*, edited by Shelton Rubenfeld and Daniel

Sulmasy, is unusual in presenting scholarly essays that begin with the history of Nazi euthanasia, and then consider its possible relationship to today's PAD.

This perspective is understandable, given the book's origin. The Center for Medicine after the Holocaust, an organization with the mission "to challenge doctors, nurses, and bioethicists to personally confront the medical ethics of the Holocaust and to apply that knowledge to contemporary practice and research," p17 invited a group of North American and Israeli palliative care specialists and medical ethicists in 2018 to visit German sites associated with Third Reich euthanasia programs. The intensive discussions that followed resulted in this provocative collection of papers.

Dr. Kenneth Prager's chapter, "The Best Physicians Are Destined for Hell," is an example of those who perceive continuity. The shocking title is a statement attributed to Rabbi Yehuda in the Babylonian Talmud. Prager argues that by the word "best," Rabbi Yehuda was referring to arrogant physicians unwilling to admit their human limitations and vulnerability. By analogy, he writes, the "best" physicians in the Third Reich developed and implemented massive euthanasia programs to rid the country of "life unworthy of living"—defective children; disabled, demented, and chronic psychiatric patients; and, ultimately, the Holocaust.

Prager implies that today's "best" physicians have abandoned the Hippocratic injunction to do no harm, not only by supporting voluntary PAD, but also by endorsing more inclusive indications for PAD and less restrictive regulations. For example, in 2019, Oregon abandoned its earlier 15 day waiting period after a request for PAS. In the same year, a Canadian court ruled against the previous restriction that PAD was only permitted in cases of "a reasonably foreseeable natural death." p286 However, Prager offers no evidence that widespread pressure by physicians, whether the "best" or not, was responsible for these legislative and judicial developments. While surveys show that more than 50 percent of American physicians now support the legalization of PAD under some circumstances, the ethical context is far different than it was in the Third Reich.

Most of the writers strive to make a clear distinction between historical eugenics-based euthanasia and contemporary PAD. In Chapter 14, Dr. James Downar makes this point by considering the difference between a physician's decision that "this person's life is not worth living" and the individual's decision, "I have decided it's not worth it for me to go on suffering." Downar supports the latter, but does not address practical issues of implementation. Dr. Timothy Quill (AΩA, University of Rochester School of Medicine and Dentistry, 1976), an early supporter of PAS as one of the "palliative options to address severe suffering toward the very end of life," p159 presents a thoughtful discussion of practical benefits and risks, before concluding:

> If these decisions are first and foremost driven by the voluntary and capable choices of patients who are otherwise receiving excellent medical care, and not by their clinicians or other overarching societal issues, then contemporary [PAS and AE] can potentially be differentiated from medical practice and policies of the Holocaust. p163

This is a surprisingly weak endorsement from a physician who has been at the forefront of the PAD movement in the United States for a quarter century. He clearly recognizes the specter of eugenic thinking and strives to avoid it. Likewise, the recent legalization of PAD in Canada is grounded in a strong affirmation of rational decision-making as a sine qua non. In the case of Carter v. Canada (2015), the Canadian Supreme Court concluded:

> While there is no clear societal consensus on physician aid in dying, there is a strong consensus that it would only be ethical with respect to voluntary adults who are competent, informed, grievously and irremediably ill, and where the assistance is clearly consistent with the patient's wishes and best interests, and [provided] in order to relieve suffering. p237

Physicians Diane Meier and Sulmasy present strong ethical arguments against legalization of PAD. As a palliative medicine specialist, Meier emphasizes that the great majority of physical, psychological, and spiritual suffering of terminally ill patients can be relieved by multi-disciplinary palliative care. She considers legalization unwise primarily for practical reasons:

- The safeguards purported to prevent misuse are unrealistic and ineffective;
- Physicians are poor gatekeepers, imperfect and vulnerable to pressure from others; and
- Public policy must rely not only on majority opinion, but also on assurance that vulnerable patients will be protected from harm. p207

These three objections all draw attention to the same reality, the vulnerability of extremely ill patients to pressure from family, physicians, and social expectations. Such consequentialist arguments have been a mainstay for those who oppose PAD.

The empirical evidence regarding a slippery slope is mixed. On the one hand, even when PAD has been practiced for decades, it only accounts for a small percentage of total deaths, e.g., 4.5 percent in the Netherlands in 2017. In 2019, PAS accounted for only 51.9 per 10,000 deaths in Oregon, though the practice had been legalized in 2002. On the other hand, a slippery slope effect is evident in terms of extending PAD beyond strictly autonomous decision-making.

Euthanasia of infants, obviously not based on the principle of autonomy, is commonly practiced in the Netherlands (cf. Eric Kadish, "Pediatric Euthanasia: A Call for Civil Disobedience,"[p291]). Likewise, the original requirement that PAD only be permitted for patients with terminal illness has already been overturned in Canada and the Netherlands. In some cases, regulations designed to ensure the patient's firm resolution, like Oregon's 15 day waiting period, have also been dropped.

Sulmasy presents the most philosophically sophisticated arguments against PAD. He analyzes limitations of the principle of autonomy itself, arguing that our technologically-driven and medicalized society creates a false impression that one's autonomous control over one's personhood is, or should be, limitless. Among his other arguments, he considers, "the disabled, who already lack control over their bodies, are further disempowered and disenfranchised when the state permits patients to declare that dependency on others renders their lives no longer worth living…."[p314] In other words, if anyone who has become dependent on others can legally obtain medical aid in dying, then the lives of all disabled, dependent persons become suspect.

Physician-Assisted Suicide and Euthanasia offers thoughtful reflections of a group of scholars and palliative care physicians on involuntary euthanasia of "defective" persons, a concept that was endorsed by a large percentage of physicians in the Third Reich. While they are mostly successful in distinguishing this eugenics-based practice from contemporary PAD, some envision a slippery slope by which safeguards will decrease and non-autonomous persons will qualify for PAD in their own "best interest." This is a stimulating, but sobering, book.

Dr. Coulehan is a member of *The Pharos* Editorial Board, and one of its Book Review Editors. He is Emeritus Director of the Center for Medical Humanities, Compassionate Care, and Bioethics at Stony Brook University in New York. His E-mail address is john.coulehan@stonybrookmedicine.edu.

More AΩA books

Eddie's Boy, by Robert Schwab, MD (AΩA, University of Virginia School of Medicine, 1993, Alumni); Warren Publishing, Inc., February 2, 2021; 400 pages.

Quiet Lives: Stories from Beyond the Stethoscope, by Bill Toms, MD; BookBaby, January 27, 2021; 192 pages.

A Different Military Life: Interesting Short Stories From 12418 Days Of Service, by Stephen J. Frushour, MD (AΩA, The Ohio State University College of Medicine, 1975); Independently published, December 19, 2020; 256 pages.

William Hart: Catalogue Raisonne and Artistic Biography, Gary L. Stiles, MD (AΩA, Duke University School of Medicine, 1996, Faculty); Self-published, December 2020; 579 pages.

Picture This: A Cartoon Anthology, by Stephen Raskin, MD (AΩA, Medical College of Wisconsin, 1973); Xlibris Corp, November 22, 2020; 112 pages.

Psychosocial Aspects of Chronic Kidney Disease: Exploring the Impage of CKD, Dialysis, and Transplantation on Patients, by Daniel Cukor, PhD, Scott D. Cohen, MD, (AΩA, University of Miami Miller School of Medicine, 2001, and Paul L. Kimmel, MD (AΩA, George Washington University School of Medicine and Health Sciences, 1990, Faculty); Academic Press, October 5, 2020; 576 pages.

Seeking Hidden Treasures: A Collection of Curious Tales and Essays, by James Magner, MD (AΩA, University of Chicago Pritzker School of Medicine, 1977); Archway, August 11, 2020; 390 pages.

Seattle's Medic One: How We Don't Die, by Richard Rapport, MD; The History Press, August 5, 2019; 192 pages.

Elusive Equity, Empathy and Empowerment: One Woman's Journey through the Challenges of Gender Bias in the Early Twenty-First Century, by Elizabeth A. Edwardsen, MD (AΩA, University of Rochester School of Medicine and Dentistry, 2004, Alumni); Rushmore Press LLC, July 12, 2020; 148 pages.

On LIFE: Thoughts on Lifes Challenges, and *On LIFE Journal: A Companion Workbook*, by Harvey J. White, MD (AΩA, Wayne State University School of Medicine, 1978); Vessel Press, July 1, 2020; 122 pages.

Profiteering, Corruption and Fraud in U.S. Health Care, by John Geyman, MD (AΩA, University of Washington School of Medicine, 2010, Faculty); Copernicus Healthcare, June 1, 2020; 204 pages.

Sex Matters: How Male-Centric Medicine Endangers Women's Health and What We Can Do About It, by Alyson J. McGregor, MD (AΩA, Boston University School of Medicine, 2018, Alumni); Hachette Go, May 19, 2020; 272 pages.

A Surgeon's Knot, by William Lynes, MD (AΩA, University of Texas Medical Branch School of Medicine, 1981); Black Rose Writing, April 22, 2020); 191 pages.

A Leader's Guide to Giving a Memorable Speech: How to Deliver a Message and Captivate an Audience, by Donald Palmisano, MD (AΩA, Tulane University School of Medicine, 2003, Alumni); Skyhorse, April 7, 2020; 192 pages.

Ijeoma: A Mother's Journey to Save Her Daughters, by Richard Sacks, MD (AΩA, Meharry Medical College School of Medicine, 1972); Trimark Press, March 2, 2020; 438 pages.

The Estrogen Question: Know Before You Say No to HRT, by Sandra Rice, MD (AΩA, University of Washington School of Medicine, 1978); Rice-Nizlek Associates, November 29, 2019, 382 pages.

Case Studies in Medical Toxicology, by Leslie R. Dye (AΩA, University of Kansas School of Medicine, 1986), Christine Murphy, MD, Diane P. Calello, MD (AΩA, Rutgers New Jersey Medical School, 1999), Michael D. Levine, MD (AΩA, Rosalind Franklin University of Medicine & Science, 2004), Aaron Skolnik, MD (AΩA, University of Pittsburgh School of Medicine, 2007); Springer, January 19, 2018; 272 pages.

Wonderful Weeds and Various Varmints: The Natural World in Our Backyards and Beyond, by Bob Collier, MD (AΩA, University of Tennessee Health Science Center College of Medicine, 1963); University of Tennessee Press, October 4, 2018; 341 pages.

In Shock: My Journey from Death to Recovery and the Redemptive Power of Hope, by Rana Awdish, MD (AΩA, Wayne State University School of Medicine, 2002); Picador, October 1, 2018; 272 pages.

Medieval Islamic Medicine and Islamic Medical Luminaries, by Adel K. Afifi, MD (AΩA, American University of Beirut Faculty of Medicine, 1970, Faculty) and Ronald A. Bergman, PhD (AΩA, American University of Beirut Faculty of Medicine, 1979 Faculty); Outskirts Press, October 27, 2017; 418 pages.

Less is More: A Collection of Ten-Minute Plays, by David H. Rosen, MD (AΩA, University of Missouri-Columbia School of Medicine, 1970); Wipf and Stock, July 13, 2016; 106 pages.

*Triumph Over Tragedy: The Odyssey of an Academic Physicia*n, by William H. Frishman, MD (AΩA, Albert Einstein College of Medicine/Montefiore Medical Center, 1978, Faculty; Science International Corporation, June 29, 2016; 260 pages.

Leadership for Great Customer Service: Satisfied Employees, Satisfied Patients, Second Edition, by Thom A. Mayer, MD (AΩA, Rush Medical College of Rush University, 1983) and Robert J. Cates, MD (AΩA, Indiana University School of Medicine, 1971); Health Administration Press, May 1, 2014; 236 pages.

War Surgery in Afghanistan and Iraq: A Series of Cases, 2003-2007, by Shawn Christian Nessen, M.D. Dave Edmond Lounsbury, MD, (AΩA, The Robert Larner, M.D. College of Medicine at the University of Vermont, 1978), Stephen P. Hetz, MD (AΩA, Uniformed Services University of the Health Sciences F. Edward Hébert School of Medicine, 1982); Department of the Army, July 1, 2008; 464 pages.