The FDA and the Clinical Community

The US Food and Drug Administration (FDA) preserves and protects the public health through the regulation of food, cosmetics, animal health products, drugs, devices, biologics, tobacco products, and other technologies. The agency’s long-term success requires collaborative, synergistic interaction across the biomedical, clinical, and public health communities to improve the translation of science into effective interventions. The FDA must also maintain robust regulatory oversight to prevent unsafe or ineffective medical products from entering the market, or from being used in unsafe ways because of untruthful or misleading advertising or error-prone design. Achieving this balance requires the FDA to be effectively linked with the broader ecosystem it oversees.

This Viewpoint emphasizes overarching FDA priorities focused on helping to create a system that benefits from abundant high-quality evidence in a transparent environment while working together with the US biomedical ecosystem.

Continuing Major Efforts Against COVID-19

Despite the availability of safe, effective vaccines for SARS-CoV-2 and highly effective therapeutic and testing technologies, the US death rate from COVID-19 exceeds that of other high-income nations. The US also trails many other high-income countries regarding vaccination rates. When people in the US have contracted the virus, too few have undergone proper testing or had measures taken to prevent spread. The collaboration including FDA, industry, academia, and health systems has led the world in developing effective technologies to counteract the virus. The clinical community should consider applying lessons from clinical areas in which evidence-based recommendations are implemented at scale (such as cardiovascular disease and cancer) so that quality systems ensure effective, equitable delivery of lifesaving prevention and treatment.

The clinical community must remain resilient and work toward more equitable delivery of evidence-based therapies. Substantial disparities in COVID-19 vaccination rates and use of therapeutics will be closed only with a proactive approach by clinicians. Furthermore, the US public has been exposed to highly variable recommendations on social media and in professional circles about COVID-19 treatment and prevention. Broad collaboration is needed across clinical communities to promote reliable information about lifesaving vaccinations and treatments and counter the spread of medical misinformation.

Addressing Drug Use and Overdose

Drug use and overdose, which often co-occur with mental illness, account for more than 100 000 US deaths per year and continue to devastate families and communities. The problem has been worsened by easy access to potent, low-cost fentanyl and methamphetamine synthesized on large scales in illicit factories and distributed via refined systems.

The FDA will redouble efforts to enhance access to naloxone, improve prescriber education, and encourage development of new therapies for pain and substance use disorders. In addition, the agency will consider public health risks related to misuse, abuse, substance use disorder, unintentional exposure, and overdose (in individuals prescribed the drug and in the larger community) in its benefit-risk assessment of opioids and other substances, including stimulants and benzodiazepines. However, without renewed commitment, focus, and investment from the clinical community directed toward substance use disorders and nonaddictive pain treatments, many individuals will struggle with lifelong addiction resulting from misuse of prescription and nonprescription substances that may lead to overdose death.

Reducing Harms From Tobacco

Tobacco product use is the leading cause of years of life lost in the US according to recent data. The FDA’s Center for Tobacco Products will continue to use its regulatory authority to reduce harm from tobacco. Unfortunately, the 2021 National Youth Tobacco Survey indicated more than 2 million youth used e-cigarettes in the previous year and almost 25% of them used e-cigarettes every day, suggesting a high likelihood of nicotine dependence. With enactment of policies to reduce tobacco product use, the FDA will continue partnering with the clinical community to strengthen support for people struggling with nicotine addiction and encourage young people to avoid all tobacco products. Enhanced emphasis on this issue by health systems is needed.

Accelerating Progress Against Cancer, Rare Diseases, and Chronic Conditions

Accelerating progress in preventing and treating cancer and rare diseases remains a major priority at the FDA. The approximately 5-year shorter life expectancy in the US, compared with other high-income countries, must be addressed by improving outcomes for common chronic diseases. This is particularly important for mental health and neurologic conditions, for which the pipeline of effective new therapies has lagged. The FDA’s broad remit, which in addition to drugs and devices also includes regulation of food and education about diet, should include greater efforts to improve interventions for common chronic diseases.

Biomedical discovery and translational science are gathering speed in regenerative medicine and genetic modification, with applications ranging from rare diseases to common chronic diseases. Regulatory models that stimulate innovation while detecting risks will require new systems for clinical evaluation to assess outcomes during the long intervals needed to evaluate the benefits and risks of interventions with potentially lifelong effects, often amid scientific and clinical uncertainty at the outset of treatment.
Human and Animal Health

Pandemics, as well as antimicrobial resistance, are driven by complex interactions across animal and human populations. The One Health concept of a common systematic approach to human and animal health provides a framework for understanding these interactions. However, monitoring the shared microbiome and the effects of interventions on wildlife, farms, and clinics requires computational resources, data, and analytic methods on large scales. It will also require development of ethical and regulatory conventions and privacy protections for sharing relevant information across organizational and institutional boundaries. More collaboration is needed to achieve appropriate balance in human and veterinary use of antibiotics, along with participation in systems capable of monitoring the microbiome.

Evidence Generation

When the FDA’s decisions generate controversy, it is often when the system fails to produce reliable evidence that clarifies an intervention’s risks and benefits during a relevant time frame. The gap between FDA clearance or approval of a medical product (particularly when the accelerated approval pathway is used) and use of the product to treat patients should be filled by an invigorated clinical research system that generates evidence that patients, clinicians, and health systems need to make well-informed decisions. An essential cornerstone of such a system is the support of consortia that include patients, families, clinicians, researchers, and industry. FDA programs can stimulate progress in evidence generation, but those programs will be more successful if leaders of academic institutions, health systems, and professional societies prioritize evidence generation as a professional activity.

Accurate diagnoses are essential to planning appropriate interventions. But this simple model belies the promise and complexity entailed by rapidly advancing technology, biological knowledge, and measurement systems to inform decisions based on a probabilistic framework that includes a wealth of information from electronic health records and the digital environment. Although technical aspects of laboratory testing continue to evolve, the clinical community should focus on improving the collective understanding of how to use tests and other information to better inform decisions, especially considering the increasing uptake of home testing.

One immediate result of the “fourth industrial revolution” is greatly expanded access to digital information. However, the global information environment has been contaminated by misinformation and disinformation. The FDA must be more proactive in preempting and countering misinformation, but the complexity of this issue requires collaboration across sectors to create an information environment in which decisions about diet, testing, and therapeutic interventions made by consumers, patients, and clinicians are more likely to be informed by reliable information based on high-quality evidence from trustworthy sources.

Reversing Inequities in Health Outcomes

Innovative uses of data can refine current approaches to identifying differences in health outcomes across the population and inform necessary interventions to improve outcomes for all. Inequities associated with race and ethnicity, age, sex, gender, and socioeconomic factors are readily apparent through the lens of geographic data, as exemplified by rapidly widening gaps in outcomes for US rural populations compared with urban and suburban ones. The FDA can provide a foundation for addressing inequities in outcomes through regulatory approaches that delineate pathways for food and medical products that produce health benefits that exceed risks, including improved efforts to deliver reliable information for diverse audiences. These efforts include a focus within FDA on improving the diversity of clinical trial participants in cooperation with the clinical research community. However, unless capabilities for sharing data are improved and greater synergy is built across the clinical ecosystem, these solutions will fall short of their potential.

Conclusions

Translating the full potential of US biomedical science into better health outcomes requires enhanced interfaces between the development, production, and distribution of medical products; the production and distribution of food; and the use of those products to improve longevity and quality of life (eTable in the Supplement). An evidence-driven system for clinical delivery that ensures reliable implementation of effective interventions across FDA-regulated products, including food, tobacco, drugs, biologics, devices, and other technologies, could result in substantial and equitable improvement in health and longevity of all people in the US.

ARTICLE INFORMATION

Published Online: August 22, 2022.
doi:10.1001/jama.2022.15243

Conflict of Interest Disclosures: Dr Califf is an employee of the FDA. He reports no conflicts of interest related to this article. Prior to his appointment as FDA Commissioner for Food and Drugs, Dr Califf was an employee of and held equity in Verily Life Sciences and Google Health (Alphabet); served as a member for the National Academy of Medicine’s (NAM) Health Sciences Policy Board and Committee on Security of America’s Medical Product Supply Chain, and cochaired the NAM Forum on Drug Discovery, Development and Translation; and served on boards of directors for Cyto dynamics, Centessa, Clinetic, Keystone Symposia, the Center for Policy Analysis on Trade and Health, the Clinical Research Forum, and One Fifteen.

REFERENCES