FDA Addresses Data's Critical Role in COVID-19 Response

The acting CIO shared insights into the agency's pandemic response and lessons learned so far.

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The Food and Drug Administration is a key federal health agency in the country’s response to the COVID-19 public health crisis, but with limited data on the virus, the agency is adapting and learning lessons as it goes.
The agency has recently approved rapid-diagnostic tests, possible drug treatments such as hydroxychloroquine and remdesivir, and 3D-printed face masks with unprecedented speed. But it remains vital for the agency to continue making well-informed decisions to ensure the safety and efficacy of these treatments and products.

“We need to simultaneously balance the need to move fast and make sure that clinicians, drug developers [and] vaccine developers have the tools that they need, while also making sure that we maintain the standards we expect,” said FDA Principal Deputy Director and Acting CIO Amy Abernethy during the virtual 2020 World Medical Innovation Forum Monday. “The task is to make sure that we move as quickly as possible, but do so in a judicious way that's constantly being ‘right-sized.’”

One example of "right-sizing" is with the approval and monitoring of diagnostics tests. The FDA released an emergency-use authorization March 16 for the development of diagnostics so that more could be available to the market, said Abernethy. In the context of serology (antibody) tests, the agency realized the tests did not have the sensitivity and specific data required to assess and diagnose patients. The agency then issued an amended authorization May 5 so that companies with serology tests for COVID-19 would have to send information about test sensitivity and specificity before gaining market approval.

“First, there was regulatory flexibility. Then, we observed what was taking place and pulled back,” said Abernethy.

The rapid approval of COVID-19 treatments like hydroxychloroquine marks another example in which the agency has had to make timely adjustments given limited, yet potentially promising, data on treatment efficacy.

“Here was an area where there was a lack of any effective COVID-19-specific drugs on the market, a set of questions, and data sets suggesting that hydroxychloroquine may have a role for people with COVID-19,” Abernethy said.
At the end of March, the agency issued an emergency-use authorization for the anti-malaria drug to be used in clinical settings for those hospitalized with COVID-19. The agency has continued to closely monitor the drug’s effectiveness and administered side effects after the expedited approval; it then amended the authorization in early May, notifying the public of cardiac risks associated with the drug.

“We're certainly waiting for the clinical trials around hydroxychloroquine. We're all continuously monitoring data,” Abernethy said.

These regulatory flexibilities are what’s necessary to respond quickly to the unique and evolving threat posed by the pandemic, said Lindsay Betam, director of clinical research within the Division of Infectious Diseases at Brigham and Women’s Hospital and an associate professor at Harvard Medical School. But it’s also important to “right-size” by monitoring the data closely and communicating regulatory adjustments accordingly when it becomes available.

“Remdesmivir was taken off the shelf and used in a systematic way, and data was generated that suggests activity. As we have [said], the speed of everything is such where those data are still not fully available — they're available to the [Data and Safety Monitoring Board], to the agency, to key bodies," Betam said. "We all look forward to more data being available, but I think that speaks to the speed with which we're moving and how best to communicate accurately when we're moving this fast across so many domains."

Echoing Abernethy’s sentiment, Betam noted these communication efforts require close collaboration and innovation not just within the agency, but also across various sectors.

“Over the course of four months, not only have we had to develop diagnostics, [we've had to] understand transmissibility, global spread, potential diseases associated with it and potential therapies to treat it,” Betam said. “The FDA and oversight bodies have had an incredibly challenging job to be flexible — to allow us to develop the techniques needed to clinically define this disease and to also start developing therapies to treat it.”

Betam emphasized that a typical timeline for treatment development is yearslong.
“What we, as a community of practitioners and researchers, need to do is realize that as new data emerges, we will recalibrate what we think these treatments and diagnostics can do, which is a little bit different than what we're used to,” Betam said. “We're used to years of development — high-quality, phase 3 trials; carefully choreographed endpoints; carefully analyzed data; carefully debated meaning across multiple studies; and then, a regulatory review or approval with a label with lots of detail. That is not what we have here.”

Betam further emphasized the need to adapt and respond quickly for the sake of protecting public health.

“This can't be business as usual,” he stressed. “We're in a position where we're developing clinical trials for a pandemic in weeks, but that's still too slow. [This response] is better than we've ever done it before as a community, but we need to then look at that and say, ‘Can we do it even better?’”

To tackle the current pandemic, the FDA is learning quickly how to improve its efforts moving forward. For one, common tools are critical for sharing information and evaluations faster.

“One of the things that are processed more efficiently is developing common sets of data elements that allow [us] the ability to think about more efficient study designs [with] common data elements — perhaps also being able to be more efficient for meta-analysis cross-studies in the future,” Abernethy said.

The agency is also learning of improvements to be made to their tools suites, such as incorporating a common platform file that could better enable collaborative learning and review processing.

FDA also wants to increase using real-world data to speed up understanding the disease, as well as evaluation and monitoring efforts, Abernethy said. Specifically, the agency is looking to understand how to leverage electronic health records or other existing datasets to understand the history of the disease and "right-size" the decision-making, she added.
Reiterating the importance of collaboration, Abernethy and Betam noted that the agency and other pandemic-response players should also identify which cooperative efforts have helped during pandemic response efforts and why.

“We really are in this together,” Betam said. "We're in this together globally.”