

Dated: December 26, 2024.

Kimberlee Trzeciak,

Deputy Commissioner for Policy, Legislation, and International Affairs.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. FDA-2024-D-4488]

Artificial Intelligence-Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations; Draft Guidance for Industry and Food and Drug Administration Staff; Availability

AGENCY: Food and Drug Administration, HHS.

ACTION: Notice of availability.

SUMMARY: The Food and Drug Administration (FDA or Agency) is announcing the availability of the draft guidance entitled “Artificial Intelligence Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations.” This draft guidance, when finalized, will provide recommendations regarding the contents of marketing submissions for devices that include artificial intelligence (AI)-enabled device software functions including documentation and information that will support FDA’s evaluation of safety and effectiveness. To support the development of appropriate documentation for FDA’s assessment of the device, this draft guidance also proposes recommendations for the design, development, and implementation of AI-enabled devices that sponsors may wish to consider using throughout the total product lifecycle (TPLC). This draft guidance is not final nor is it for implementation at this time.

DATES: Submit either electronic or written comments on the draft guidance by April 7, 2025 to ensure that the Agency considers your comment on this draft guidance before it begins work on the final version of the guidance.

ADDRESSES: You may submit comments on any guidance at any time as follows:

Electronic Submissions

Submit electronic comments in the following way:

- *Federal eRulemaking Portal:* <https://www.regulations.gov>. Follow the instructions for submitting comments. Comments submitted electronically,

including attachments, to <https://www.regulations.gov> will be posted to the docket unchanged. Because your comment will be made public, you are solely responsible for ensuring that your comment does not include any confidential information that you or a third party may not wish to be posted, such as medical information, your or anyone else’s Social Security number, or confidential business information, such as a manufacturing process. Please note that if you include your name, contact information, or other information that identifies you in the body of your comments, that information will be posted on <https://www.regulations.gov>.

- If you want to submit a comment with confidential information that you do not wish to be made available to the public, submit the comment as a written/paper submission and in the manner detailed (see “Written/Paper Submissions” and “Instructions”).

Written/Paper Submissions

Submit written/paper submissions as follows:

- *Mail/Hand Delivery/Courier (for written/paper submissions):* Dockets Management Staff (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852.

- For written/paper comments submitted to the Dockets Management Staff, FDA will post your comment, as well as any attachments, except for information submitted, marked and identified, as confidential, if submitted as detailed in “Instructions.”

Instructions: All submissions received must include the Docket No. FDA-2024-D-4488 for “Artificial Intelligence-Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations.” Received comments will be placed in the docket and, except for those submitted as “Confidential Submissions,” publicly viewable at <https://www.regulations.gov> or at the Dockets Management Staff between 9 a.m. and 4 p.m., Monday through Friday, 240-402-7500.

- *Confidential Submissions—*To submit a comment with confidential information that you do not wish to be made publicly available, submit your comments only as a written/paper submission. You should submit two copies total. One copy will include the information you claim to be confidential with a heading or cover note that states “THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION.” The Agency will review this copy, including the claimed confidential information, in its consideration of comments. The second copy, which will have the

claimed confidential information redacted/blacked out, will be available for public viewing and posted on <https://www.regulations.gov>. Submit both copies to the Dockets Management Staff. If you do not wish your name and contact information to be made publicly available, you can provide this information on the cover sheet and not in the body of your comments and you must identify this information as “confidential.” Any information marked as “confidential” will not be disclosed except in accordance with 21 CFR 10.20 and other applicable disclosure law. For more information about FDA’s posting of comments to public dockets, see 80 FR 56469, September 18, 2015, or access the information at: <https://www.govinfo.gov/content/pkg/FR-2015-09-18/pdf/2015-23389.pdf>.

Docket: For access to the docket to read background documents or the electronic and written/paper comments received, go to <https://www.regulations.gov> and insert the docket number, found in brackets in the heading of this document, into the “Search” box and follow the prompts and/or go to the Dockets Management Staff, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852, 240-402-7500.

You may submit comments on any guidance at any time (see 21 CFR 10.115(g)(5)).

An electronic copy of the guidance document is available for download from the internet. See the **SUPPLEMENTARY INFORMATION** section for information on electronic access to the guidance. Submit written requests for a single hard copy of the draft guidance document entitled “Artificial Intelligence-Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations” to the Office of Policy, Center for Devices and Radiological Health, Food and Drug Administration, 10903 New Hampshire Ave., Bldg. 66, Rm. 5431, Silver Spring, MD 20993-0002. Send one self-addressed adhesive label to assist that office in processing your request.

FOR FURTHER INFORMATION CONTACT: Sonja Fulmer, Center for Devices and Radiological Health, Food and Drug Administration, 10903 New Hampshire Ave., Bldg. 66, Rm. 5536, Silver Spring, MD 20993-0002, 240-402-5979; or James Myers, Center for Biologics Evaluation and Research, Food and Drug Administration, 10903 New Hampshire Ave., Bldg. 71, Rm. 7301, Silver Spring, MD 20993, 240-402-7911; or Center for Drug Evaluation and Research, Food and Drug Administration, 10903 New Hampshire

Ave., Hillandale Bldg., 4th Floor, Silver Spring, MD 20993-0002, 301-796-3400.

SUPPLEMENTARY INFORMATION:

I. Background

FDA has long promoted a TPLC approach to oversight of medical devices, including AI-enabled devices, and has committed to developing guidances and resources for such an approach. Some recent efforts include developing guiding principles for good machine learning practice (GMLP) and transparency for machine learning-enabled devices to help promote safe, effective, and high-quality machine learning models; and a public workshop on fostering a patient-centered approach to AI-enabled devices, including discussion of device transparency for users. This draft guidance intends to continue these efforts, by proposing recommendations tailored to a TPLC approach for AI-enabled devices. This draft guidance, when finalized, will provide recommendations regarding the contents of marketing submissions for devices that include AI-enabled device software functions including documentation and information that will support FDA’s evaluation of safety and effectiveness. The recommendations reflect a comprehensive approach to the management of risk throughout the device TPLC. To support the development of appropriate documentation for FDA’s assessment of the device, this draft guidance also proposes recommendations for the design, development, and implementation of AI-enabled devices that manufacturers may wish to consider using throughout the TPLC. This draft guidance, when finalized, also will include FDA’s current thinking on strategies to address transparency and bias throughout the TPLC of AI-enabled devices, including by collecting evidence to evaluate whether a device benefits all relevant demographic groups (e.g., race, ethnicity, sex, and

age) similarly, to help ensure that these devices remain safe and effective for their intended use. These interconnected considerations are important throughout the TPLC and should be incorporated from the earliest stages of device development through decommission to help design transparency into the device. Finally, this draft guidance proposes recommendations that address the performance of AI-enabled devices in the postmarket setting.

This draft guidance is being issued consistent with FDA’s good guidance practices regulation (21 CFR 10.115). The draft guidance, when finalized, will represent the current thinking of FDA on “Artificial Intelligence Enabled Device Software Functions: Lifecycle Management and Marketing Submission Recommendations.” It does not establish any rights for any person and is not binding on FDA or the public. You can use an alternative approach if it satisfies the requirements of the applicable statutes and regulations.

II. Other Considerations

The recommendations discussed within the document are based upon FDA’s experience with reviewing a diversity of AI-enabled devices and current regulatory science research. However, FDA understands that the development of AI is an evolving field, with experts from many different sectors that can contribute to the development of AI-enabled devices. FDA requests public comment from all interested stakeholders on the following items:

- How well the proposed recommendations align with the AI lifecycle.
- The adequacy of the recommended documentation to be included in a marketing submission to address concerns that may be raised with AI-enabled devices that use emerging technology, such as generative AI.
- The proposed approach to performance monitoring, including use

of a performance monitoring plan as a means of risk mitigation for AI-enabled devices.

- The proposed approach to the type of information that should be conveyed to users about AI-enabled devices, including the example model card.

III. Electronic Access

Persons interested in obtaining a copy of the draft guidance may do so by downloading an electronic copy from the internet. A search capability for all Center for Devices and Radiological Health guidance documents is available at <https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/guidance-documents-medical-devices-and-radiation-emitting-products>. This guidance document is also available at <https://www.regulations.gov>, <https://www.fda.gov/regulatory-information/search-fda-guidance-documents>, or <https://www.fda.gov/vaccines-blood-biologics/guidance-compliance-regulatory-information-biologics>. Persons unable to download an electronic copy of “Artificial Intelligence Enabled Device Software Functions: Lifecycle Management and Premarket Submission Recommendations” may send an email request to CDRH-Guidance@fda.hhs.gov to receive an electronic copy of the document. Please use the document number GUI00007028 and complete title to identify the guidance you are requesting.

IV. Paperwork Reduction Act of 1995

While this guidance contains no new collection of information, it does refer to previously approved FDA collections of information. The previously approved collections of information are subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3521). The collections of information in the following table have been approved by OMB:

| 21 CFR part; guidance; or FDA form | Topic | OMB control No. |
|--|--|-----------------|
| 807, subpart E | Premarket notification | 0910–0120 |
| 814, subparts A through E | Premarket approval | 0910–0231 |
| 814, subpart H | Humanitarian Use Devices; Humanitarian Device Exemption .. | 0910–0332 |
| 812 | Investigational Device Exemption | 0910–0078 |
| 860, subpart D | De Novo classification process | 0910–0844 |
| “Requests for Feedback and Meetings for Medical Device Submissions: The Q-Submission Program”. | Q-submissions and Early Payor Feedback Request Programs for Medical Devices. | 0910–0756 |
| 820 | Current Good Manufacturing Practice (CGMP); Quality System (QS) Regulation. | 0910–0073 |
| 800, 801, 809, and 830 | Medical Device Labeling Regulations; Unique Device Identification. | 0910–0485 |

Dated: December 27, 2024.

Kimberlee Trzeciak,

Deputy Commissioner for Policy, Legislation, and International Affairs.

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DEPARTMENT OF HEALTH AND HUMAN SERVICES

Food and Drug Administration

[Docket No. FDA-2019-D-2648]

Heritable Intentional Genomic Alterations in Animals: The Approval Process; Guidance for Industry; Availability

AGENCY: Food and Drug Administration, HHS

ACTION: Notice of availability.

SUMMARY: The Food and Drug Administration (FDA or Agency) is announcing the availability of a final guidance for industry #187B entitled “Heritable Intentional Genomic Alterations in Animals: The Approval Process.” This guidance clarifies FDA’s requirements and recommendations for developers of intentional genomic alterations (IGAs) in animals. The guidance is one of two companion documents. “Heritable Intentional Genomic Alterations in Animals: The Approval Process” describes how the FDA approval process applies to heritable IGAs in animals. The companion final guidance, GFI #187A entitled “Heritable Intentional Genomic Alterations in Animals: Risk-Based Approach,” describes FDA’s risk-based regulatory approach to the oversight of heritable IGAs in animals.

DATES: The announcement of the guidance is published in the **Federal Register** on January 7, 2025.

ADDRESSES: You may submit either electronic or written comments on Agency guidances at any time as follows:

Electronic Submissions

Submit electronic comments in the following way:

- *Federal eRulemaking Portal:* <https://www.regulations.gov>. Follow the instructions for submitting comments. Comments submitted electronically, including attachments, to <https://www.regulations.gov> will be posted to the docket unchanged. Because your comment will be made public, you are solely responsible for ensuring that your comment does not include any confidential information that you or a third party may not wish to be posted, such as medical information, your or

anyone else’s Social Security number, or confidential business information, such as a manufacturing process. Please note that if you include your name, contact information, or other information that identifies you in the body of your comments, that information will be posted on <https://www.regulations.gov>.

- If you want to submit a comment with confidential information that you do not wish to be made available to the public, submit the comment as a written/paper submission and in the manner detailed (see “Written/Paper Submissions” and “Instructions”).

Written/Paper Submissions

Submit written/paper submissions as follows:

- *Mail/Hand delivery/Courier (for written/paper submissions):* Dockets Management Staff (HFA-305), Food and Drug Administration, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852.
- For written/paper comments submitted to the Dockets Management Staff, FDA will post your comment, as well as any attachments, except for information submitted, marked and identified, as confidential, if submitted as detailed in “Instructions.”

Instructions: All submissions received must include the Docket No. FDA-2019-D-2648 for “Heritable Intentional Genomic Alterations in Animals: The Approval Process.” Received comments will be placed in the docket and, except for those submitted as “Confidential Submissions,” publicly viewable at <https://www.regulations.gov> or at the Dockets Management Staff between 9 a.m. and 4 p.m., Monday through Friday, 240-402-7500.

- **Confidential Submissions—**To submit a comment with confidential information that you do not wish to be made publicly available, submit your comments only as a written/paper submission. You should submit two copies total. One copy will include the information you claim to be confidential with a heading or cover note that states “THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION.” The Agency will review this copy, including the claimed confidential information, in its consideration of comments. The second copy, which will have the claimed confidential information redacted/blacked out, will be available for public viewing and posted on <https://www.regulations.gov>. Submit both copies to the Dockets Management Staff. If you do not wish your name and contact information to be made publicly available, you can provide this information on the cover sheet and not in the body of your comments and you must identify this information as

“confidential.” Any information marked as “confidential” will not be disclosed except in accordance with 21 CFR 10.20 and other applicable disclosure law. For more information about FDA’s posting of comments to public dockets, see 80 FR 56469, September 18, 2015, or access the information at: <https://www.govinfo.gov/content/pkg/FR-2015-09-18/pdf/2015-23389.pdf>.

Docket: For access to the docket to read background documents or the electronic and written/paper comments received, go to <https://www.regulations.gov> and insert the docket number, found in brackets in the heading of this document, into the “Search” box and follow the prompts and/or go to the Dockets Management Staff, 5630 Fishers Lane, Rm. 1061, Rockville, MD 20852, 240-402-7500.

You may submit comments on any guidance at any time (see 21 CFR 10.115(g)(5)).

Submit written requests for single copies of the guidance to the Policy and Regulations Staff, Center for Veterinary Medicine, Food and Drug Administration, 7500 Standish Pl., Rockville, MD 20855. Send one self-addressed adhesive label to assist that office in processing your requests. See the **SUPPLEMENTARY INFORMATION** section for electronic access to the guidance document.

FOR FURTHER INFORMATION CONTACT:

Adam Moyer, Center for Veterinary Medicine, Food and Drug Administration, 7500 Standish Pl., Rockville, MD 20855, 301-796-2319, Adam.Moyer@fda.hhs.gov.

SUPPLEMENTARY INFORMATION:

I. Background

On May 2, 2024, FDA announced in the **Federal Register** the availability of two companion guidances to describe FDA’s approach to regulating IGAs in animals. The notice of availability of the first of these two guidances, final GFI #187A, entitled “Heritable Intentional Genomic Alterations in Animals: Risk-Based Approach” (89 FR 35832), describes FDA’s risk-based approach to the oversight of IGAs in animals.

The second companion IGA guidance, draft GFI #187B entitled “Heritable Intentional Genomic Alterations in Animals: The Approval Process” (89 FR 35834), describes how the FDA approval process applies to heritable IGAs in animals. Interested parties had until July 31, 2024, to comment on the draft guidance.

FDA received approximately 5,000 comments on draft GFI #187B, with 4,982 of them resulting from two write-in campaigns. Those campaigns