March 28, 2023

Annalise-AI Pty Ltd.
% Haylee Bosshard
Regulatory Affairs Manager
Level P, 24 Campbell St.
Sydney, New South Wales 2000
AUSTRALIA

Re: K222268
Trade/Device Name: Annalise Enterprise CXR Triage Trauma
Regulation Number: 21 CFR 892.2080
Regulation Name: Radiological computer aided triage and notification software
Regulatory Class: Class II
Product Code: QFM
Dated: March 9, 2023
Received: March 9, 2023

Dear Haylee Bosshard:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for

devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

Jessica Lamb, Ph.D.
Assistant Director
Imaging Software Team
DHT 8B: Division of Radiological Imaging Devices and Electronic Products
OHT 8: Office of Radiological Health
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: 06/30/2023
See PRA Statement below.

510(k) Number *(if known)*
K222268

Device Name
Annalise Enterprise CXR Triage Trauma

Indications for Use *(Describe)*
Annalise Enterprise CXR Triage Trauma is a software workflow tool designed to aid the clinical assessment of adult chest X-ray cases with features suggestive of vertebral compression fracture in the medical care environment.

The device analyzes cases using an artificial intelligence algorithm to identify findings. It makes case-level output available to a PACS or RIS for worklist prioritization or triage intended for clinicians in Bone Health and Fracture Liaison Service programs.

The device is intended to be used by trained clinicians who are qualified to interpret chest X-rays as part of their scope of practice.

The device is not intended to direct attention to specific portions of an image or to anomalies other than vertebral compression fracture.

Its results are not intended to be used on a standalone basis for clinical decision making nor is it intended to rule out specific critical findings, or otherwise preclude clinical assessment of X-ray cases.

Standalone performance evaluation of the device was performed on a dataset that included only erect positioning. Use of this device with supine positioning may result in differences in performance.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

CONTINUE ON A SEPARATE PAGE IF NEEDED.

510(k) Summary

I. SUBMITTER

Company Name	Annalise-AI Pty Ltd
Address	Level P, 24 Campbell St Sydney, NSW 2000 Australia
Phone Number	+61 1800 958 487
Contact Person	Haylee Bosshard
Date Prepared	July 28, 2022

II. SUBJECT DEVICE

Manufacturer Name	Annalise-AI Pty Ltd
Device Name	Annalise Enterprise CXR Triage Trauma
510(k) reference	K222268
Classification Name	Radiological computer aided triage and notification software (21CFR892.2080)
Regulatory Class	II
Product Code	QFM

III. PREDICATE DEVICE

Manufacturer Name	Annalise-AI Pty Ltd
Device Name	Annalise Enterprise CXR Triage Pneumothorax
510(k) reference	K213941
Classification Name	Radiological computer aided triage and notification software (21CFR892.2080)
Regulatory Class	II
Product Code	QFM

This predicate has not been subject to a design-related recall.

IV. REFERENCE DEVICE

Manufacturer Name	Zebra Medical Vision Ltd.
Device Name	HealthVCF
510(k) reference	K192901
Classification Name	Radiological computer aided triage and notification software (21CFR892.2080)
Regulatory Class	II
Product Code	QFM

V. DEVICE DESCRIPTION

Annalise Enterprise CXR Triage Trauma is a software workflow tool which uses an artificial intelligence (AI) algorithm to identify suspected findings on chest X-ray (CXR) studies in the medical care environment. The findings identified by the device include vertebral compression fractures.

Radiological findings are identified by the device using an AI algorithm – a convolutional neural network trained using deep-learning techniques. Images used to train the algorithm were sourced from datasets across three continents, including a range of equipment manufacturers and models. The performance of the device's AI algorithm was validated in a standalone performance evaluation, in which the case-level output from the device was compared with a reference standard ('ground truth'). This was determined by two ground truthers, with a third truther used in the event of disagreement. All truthers were US board-certified radiologists.

The device interfaces with image and order management systems (such as PACS/RIS) to obtain CXR studies for processing by the AI algorithm. Following processing, if the clinical finding of interest is identified in a CXR study, the device provides a notification to the image and order management system for prioritization of that study in the worklist. This enables users to review the studies containing features suggestive of these clinical findings earlier than in the standard clinical workflow. It is important to note that the device will never decrease a study's existing priority in the worklist. This ensures that worklist items will never have their priorities downgraded based on AI results.

The device workflow is performed parallel to and in conjunction with the standard clinical workflow for interpretation of CXRs. The device is intended to aid in prioritization and triage of radiological medical images only.

VI. INDICATIONS FOR USE

The Indications for Use statement is as follows:

Annalise Enterprise CXR Triage Trauma is a software workflow tool designed to aid the clinical assessment of adult chest X-ray cases with features suggestive of vertebral compression fracture in the medical care environment.

The device analyzes cases using an artificial intelligence algorithm to identify findings. It makes case-level output available to a PACS or RIS for worklist prioritization or triage intended for clinicians in Bone Health and Fracture Liaison Service programs.

The device is intended to be used by trained clinicians who are qualified to interpret chest X-rays as part of their scope of practice.

The device is not intended to direct attention to specific portions of an image or to anomalies other than vertebral compression fracture.

Its results are not intended to be used on a standalone basis for clinical decision making nor is it intended to rule out specific critical findings, or otherwise preclude clinical assessment of X-ray cases.

Standalone performance evaluation of the device was performed on a dataset that included only erect positioning. Use of this device with supine positioning may result in differences in performance.

The Indications for Use statement of the subject device differs to the predicate device only in the clinical conditions of interest, however a standalone performance evaluation was conducted and demonstrated that the device is safe and effective for its intended use. Both the subject and predicate device are intended for use to assist with worklist triage by providing notifications of suspected findings and their associated priority.

VII. COMPARISON OF TECHNOLOGICAL CHARACTERISTICS WITH THE PREDICATE DEVICE

The subject device was evaluated and compared to the predicate device with respect to the following characteristics:

1. Indications for Use
2. Target population
3. Anatomical site and modality
4. Intended user and clinical use environment
5. Technical method for notification and prioritization
6. Device input and radiological image protocol
7. Device output and means of notification to user
8. System components
9. Location where results are received
10. Prioritization relationship to standard of care workflow
11. Ability to support effective triage
12. Set of findings

The difference between the two devices were identified as:

- the set of findings that the subject device is intended to identify, and
- the users that the subject device is intended to notify.

To address these differences, standalone performance data was supplied and a reference device was used to support the conclusion that the subject device does not raise different questions of safety and effectiveness and that the subject device is as safe and effective as the predicate device.

VIII. PERFORMANCE DATA

The following performance data have been provided to support evaluation of substantial equivalence.

A. Software Verification and Validation Testing

Software verification and validation testing was conducted, and documentation was provided as recommended by FDA's Guidance for Industry and FDA Staff, "Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices", May 11, 2005.

B. Performance Testing

Performance of the subject device was assessed to satisfy requirements set forth in the special controls per 21CFR892.2080. These included standalone performance and triage effectiveness evaluations.

Standalone performance was assessed via a retrospective, anonymized study of adult patient, DICOM-compliant CXR cases. The test dataset used during the standalone performance evaluation was newly acquired and independent from the training dataset used in model development. The standalone performance study was conducted on a dataset of 589 CXR cases (positive n=272 and negative n=317), collected consecutively from four US hospital network sites. The cohort included representation across subgroups for patient demographics (gender, age, ethnicity, race), technical parameters (imaging equipment make, model), imaging parameters (positioning, projections) and co-existing findings or abnormalities. To determine the ground truth, each deidentified CXR case was annotated in a blinded fashion by at least two ABR-certified and protocol-trained radiologists (ground truthers), with consensus determined by two ground truthers and a third ground truther in the event of disagreement. The key results of the study are summarized in the tables below.

Finding	Results
Vertebral compression fracture	AUC: 0.954 (95% CI: 0.939-0.968)

Finding	Operating Point	Sensitivity (Se) (95% CI)	Specificity (Sp) (95% CI)
Vertebral compression fracture	0.3849	89.3 (85.7-93.0)	89.0 (85.8-92.1)
	0.4834	85.3 (80.9-89.3)	90.9 (87.7-94.0)

The results demonstrate the subject device establishes effective triage within a clinician's queue based on high sensitivity and specificity. Further, these results are substantially equivalent to those of the predicate device.

Triage effectiveness (turn-around time) was assessed as part of the standalone performance study. These cases were collected from multiple data sources spanning a variety of geographical

locations, patient demographics and technical characteristics. The results demonstrated an average triage turn-around time of 30.0 seconds, which is substantially equivalent to that published for the predicate device.

Therefore, the subject device has been shown to satisfy the performance requirements per 21CFR892.2080, for radiological triage and notification software, by providing clinically effective triage for chest X-ray studies containing features suggestive of clinical findings of interest. This data demonstrates the subject device is safe and effective for its intended use, and thereby supports substantial equivalence.

IX. CONCLUSIONS

The subject device and the predicate device are both software only packages, devices intended to assist with worklist triage by providing notification of findings in adults to trained clinicians. The subject and predicate devices utilize the same principles of operation and work in parallel to the current standard of care workflow.

Both the subject and predicate devices have the same software architecture, use the same deep learning AI principals to identify findings in images and require the same inputs and provide the equivalent outputs.

The minor differences between the subject and predicate devices do not raise new questions of safety and effectiveness.

Standalone performance testing and the comparison of technological characteristics with the predicate devices shows that the subject device:

- performs as intended,
- is safe and effective for its intended use, and
- is therefore substantially equivalent to the predicate device.