FIND
Diagnosis for all

# REQUEST FOR INFORMATION (RFI)

## COVID-19 VALIDATION PROJECT

PUBLICATION REFERENCE:

PROCUREMENT DOSSIER REFERENCE

PUBLICATION DATE

22 FEBRUARY 2022

# CONTENTS

## 1. LIST OF ACRONYMS AND DEFINITIONS:

| Acronym | Definition |
|---|---|
| AI | Artificial Intelligence |
| CAD | Computer Aided Detection |
| CXR | Chest Radiograph |
| DICOM | Digital Imaging and Communication in Medicine standard |
| EU | European Union |
| HIV | Human Immunodeficiency Virus |
| LMIC | Low and Middle Income Countries |
| LRTIs | Lower Respiratory Tract Infections |
| NAT | Nucic Acid Test |
| NAAT | Nucleic Acid Amplification Test |
| NADT | Nucleic Acid Detection Test |
| RFI | Request for Information |
| RT-PCR | Real Time Polymerase Chain Reaction test |
| TB | Tuberculosis |
| WHO | World Health Organization |

## 2. BACKGROUND INFORMATION:

A large proportion of persons with pulmonary infections have overlap in symptoms and in risks for COVID-19 and other viral and bacterial lower respiratory tract infections( LRTIs). Chest Radiograph (CXR) is an important tool that is available in many health care settings in low and middle income countries (LMICs), and may help guide further diagnostic work up and treatment by health providers. However, in many settings, access to CXRs of acceptable quality and, more importantly, skilled human resources to read the CXRs, remain limited.

There is growing evidence of the diagnostic utility of artificial intelligence (AI) based diagnostics for use in LMICs, and a particular area of promise is computer aided detection (CAD) software for identification of CXR abnormalities. Recently FIND validated the use of several commercially available TB CAD products to aid in the screening and triage of individuals with presumptive TB and to inform new policy recommendation for TB screening as provided by the World Health Organization (WHO). Besides the detection of TB findings, several new CAD software tools have been developed that can also recognize other lung findings on CXR, such as COVID-19 and other lower respiratory tract infections. As a result, FIND will expand its work on the evaluation of CAD software and would like to evaluate the performance of CAD for CXR in individuals at risk for COVID-19 and other lower respiratory tract infections.

More about FIND and our programs can be found on www.finddx.org.

## 3. STATEMENT OF PURPOSE:

The purpose of this RFI is to allow FIND to assess and compare the performance of different CAD software tools for the detection of and differentiation between TB, COVID-19 and other lower respiratory tract infections with the aim to inform future decision making and evidence generation for policy making.

FIND makes no obligation or undertakings in any way to:

- Go to Tender; or
- Accept any RFI information received from a specific institution; or
- Include institutions responding to this RFI in any future tender invitation; or
- Any other commitment to supplier whatsoever, including any intention to form a contract with any institution for provision of this opportunity.

## 4. Scope of Work and Objectives

FIND is seeking collaborators who are willing to provide digital CXRs and clinical data from finalized projects or studies to be used in our COVID-19 CAD validation project. This data will contribute to the independent performance evaluation and validation of CAD software tools for differentiating the diagnosis of COVID-19 from TB and other respiratory conditions in populations living in LMICs.

We are looking for finalized projects and studies that have systematically collected CXR DICOM images and demographic and clinical information from individuals that underwent CXR and reference testing because of acute respiratory symptoms in one of the following two triage settings (also sometime referred to as patient-initiated evaluation):

1.) Individuals with signs and symptoms who are seeking evaluation in a COVID-19 testing program (sometimes referred to as persons under investigation)
2.) Individuals with signs and symptoms who are seeking care for evaluation of respiratory disease (defined as acute cough with one of the following signs/symptoms present – new focal chest signs, dyspnea, tachypnea, or fever lasting > 4 days)

We will prioritize LMIC countries but are not excluding HIC from this RFI as our purpose is to select a variety of countries / regions. Additionally, we are interested in capture of data from multiple clinical settings, including evaluation in both an outpatient/clinical setting and an inpatient/hospitalized setting and in multiple age groups (adult and pediatric populations).

Projects/studies are eligible when for all individuals the following data was collected:

- Result of at least one upper or lower respiratory tract specimen with a nucleic acid detection test/nucleic acid amplification test that has received WHO emergency use listing. A complete list of these tests can be found at: https://extranet.who.int/pqweb/sites/default/files/documents/211125_EUL_SARS-CoV-2_products_list.pdf
- Documentation of patient care status at the time of evaluation (inpatient vs. outpatient evaluation)
- Demographic and clinical data including age, gender, presenting symptoms, comorbidities, and HIV status.
- A DICOM CXR image performed at the time of initial evaluation which has NOT been shared with CAD software developers for use in training software. This can be posterior anterior position (PA) or anterior posterior position (AP).

The following additional variables are of interest if these variables are recorded for all individuals in a given cohort. However, these variables are not necessary for collaboration, and applicants are encouraged to submit a RFI proposal even if the following variables are not collected.

- Sputum testing for tuberculosis with a WHO approved rapid TB test and/or liquid culture at the time of evaluation. WHO approved rapid TB tests can be found at: https://www.who.int/publications/i/item/9789240029415
- Laboratory testing for other infections as outlined in appendix A

- Clinician diagnosis in patients with negative Sars CoV2 testing and TB testing (if done).

## 5. INFORMATION TO BE PROVIDED FOR THE RFI AND DELIVERABLES FOR THE COVID-19 CAD VALIDATION PROJECT

5.1 The following information should be provided in application for the RFI:

- A description of the project and explanation why it is considered eligible.
- A description of the patient population, variables collected, study period and study location, with a focus on the scope of work outlined above and in appendix A.
- A sample table with the total number of participants (COVID-19 cases and non-cases) identified in the study or project.
- An expected timeline for preparation and submission of data, including a clean dataset according to a predefined format, a data dictionary and a set of (de-identified) DICOM images.
- If appropriate, a reference to associated publications related to specific study or project.

5.2 We expect the following deliverables from collaborators on the COVID-19 CAD validation project after award of the RFI:

- Agree with FIND on the collaboration, data sharing and usage agreement (the "Agreement").
- Sign the Agreement with FIND.
- Review and agree on the study protocol, as prepared by FIND.
- Agree with FIND on study or projects that are eligible and for which data will be contributed.
- Upon receipt of sampling number, fetch the agreed upon sample of DICOM files.
- De-identify DICOM files (remove them from any personal identifying information) and keep or assign a unique person identification number that can link the file to the demographic and clinical data for each subject included.
- Prepare a dataset (in .csv or other agreed upon format) with individual level data of the sampled individuals. This dataset should be removed from any personal identifying information, but contain the unique person identification number that can link the DICOM file to the information in the dataset.
- Prepare a document outlining the study level information, including a description of the operationalization (definitions and coding) of the variables in the individual level dataset.
- Upload the data to the secure FIND server and notify us.
- Review draft versions of the study results that are prepared by FIND and be available to answer interim questions related to the data provided.
- Review, comment and approve final draft of the study report.
- Review, comment and approve final manuscript for publication.

5.3 What FIND offers to RFI collaborators:

- up to 2 authors on any publication that arises from the COVID-19 CAD study using the data from your institute. For authorship rules we will follow the international standards on authorship, which can be found here: http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html.
- A negotiable compensation per image/subject is offered.

## 6. How to apply

Submit applications via the FIND Technology Scouting Submission Webform. Please, select '**Outbreak**' as the 'Disease Area' and 'COVID-19 validation project' as the 'Disease Area Subtype' and proceed with the online submission. Prepare a proposal with details outlined in 5.1. Proposals must be prepared in English and should identify a primary investigator for the proposal with detailed contact information, by **31st May 2022.** Any correspondences are to be sent in English by e-mail to **DHvalidation@finddx.org**.

## 7. Timelines

| | Activity | Expected date |
|---|---|---|
| 1 | Publication of RFI | 22FEB2022 |
| 2 | Closing for submission of written queries | 24MAY2022 |
| 3 | Closing of RFI | 31MAY2022 |
| | *Decision on proposals selected for interview round | 07JUN2022 |
| 4 | *Start of interviews | 14JUN2022 |
| 5 | *Close of interviews / Final decision on accepted proposals | 05JULY2022 |

*Subject to change depending on the number of applications

## 8. Questions and Communications Protocol:

Please email questions to: dhvalidation@finddx.org. Questions will be accepted and responded to expediently until 24MAY2022.

## 9. Confidentiality

If required, FIND can sign a Confidentiality Disclosure Agreement (CDA) with interested Applicants/Bidders prior to proposal submission. FIND will not disclose the proposal to third parties without the prior written agreement of the proposal submitter. Review of proposals will be carried out by an internal FIND team, all of whom are under confidentiality and are recused if found to have a potential conflict of interest (which they are obliged to disclose). Any specific questions concerning confidentiality should be addressed to the FIND team.

10. APPENDIX/ICES:
Appendix A: checklist for eligibility of data inclusion

Please check if your project of study meets our criteria and contact us if you are interested in collaborating on this project.

| **Eligibility criteria for study to contribute data to the COVID-19 CAD validation project** | **Your answer** |
|---|---|
| 1. Individuals in your study were documented to have symptoms that prompted evaluation | YES/NO |
| 2. CXR images in the form of DICOM files are available for a cohort of individuals who were tested within a defined period | YES/NO |
| 3. DICOM file have **NOT** been shared with CAD software developers for the use of training CAD software | YES/NO |
| 4. Necessary: the following variables are known for **all individuals** in your cohort from which a sample will be drawn: | |
| Age, gender, and presenting symptoms | YES/NO |
| Test result (and date) of an upper or lower respiratory sample with a Sars CoV2 NAT test which has received WHO emergency use listing* | YES/NO |
| Known HIV status | YES/NO |
| 5. You are willing to create de-identified DICOM files which only include a unique identification number that can link the DICOM file with the record containing the corresponding de-identified demographic and clinical information on an individual | YES/NO |
| 6. You are willing to prepare a dataset with subject level data of the sampled individuals, containing the same unique identification number as on the de-identified DICOM image. | YES/NO |
| 7. You have obtained or are willing to request the required ethical approval which allows you to share de-identified DICOM files and clinical data for the purpose of the COVID-19 CAD validation project. | YES/NO |
| 8. You agree that sharing of data will be done in full compliance with any applicable laws and regulations governing protected health information and other personal data (including the upcoming EU General Data Protection Regulation; www.eugdpr.org). | YES/NO |
| 9. Optional: Additionally, the following variables are known for **all individuals** in a cohort from which the sample will be drawn (results and test dates) | |
| Test result of a sputum/lower respiratory sample with liquid mycobacterial culture | YES/NO |
| Test result of a sputum/lower respiratory sample WHO approved rapid TB NAAT result ** | YES/NO |
| Microbiologic culture other than TB (upper or lower respiratory tract specimen) | YES/NO |
| Laboratory urinary legionella antigen testing | YES/NO |
| Laboratory urinary S. pneumonia antigen testing | YES/NO |
| Respiratory specimen RSV testing | YES/NO |
| Respiratory specimen influenza testing | YES/NO |
| Other respiratory pathogens NAAT testing | YES/NO |
| Blood culture results | YES/NO |
| Clinical diagnosis in individuals with negative Sars CoV2/TB testing | YES/NO |

* A complete list of Sars CoV-2 Nucleic acid detection tests and nucleic acid amplification tests that have received WHO emergency use listing can be found at:
https://extranet.who.int/pqweb/sites/default/files/documents/211125_EUL_SARS-CoV-2_products_list.pdf
** WHO approved rapid TB NAAT tests can be found at:
https://www.who.int/publications/i/item/9789240029415

Institutions with study data who can answer YES to questions 1-8 are encouraged to apply for the RFI.