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| ITU Logo | INTERNATIONAL TELECOMMUNICATION UNION  **TELECOMMUNICATION STANDARDIZATION SECTOR**  STUDY PERIOD 2017-2020 | | FG-AI4H-D-031 | |
| **ITU-T Focus Group on AI for Health** | |
| **Original: English** | |
| **WG(s):** | | N/A | Shanghai, 2-5 April 2019 | |
| **DOCUMENT** | | | | |
| **Source:** | | TG Cardio Driver | | |
| **Title:** | | TG Cardio Update | | |
| **Purpose:** | | Discussion | | |
| **Contact:** | | Benjamin Muthambi  WatIf Health  South Africa | | Email: [bmuthambi@hotmail.com](mailto:bmuthambi@hotmail.com) |

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| **Abstract:** | Update of Topic Group Cardiovascular disease risk prediction Driver Benjamin Muthambi at the FG-AI4H Shanghai meeting (meeting D), April 2019. |

**\*Calls for Co-Investigators, Advisory Group Participants, & Data-Contributing Performance Sites:**

**PHASE 1 CALLS FOR PARTICIPANTS:**

**Calls for Participation in Primary Accuracy Evaluation Studies:-**

**Target Audiences/Participants**:

1.1.-**Epidemiologists/Evaluators** (*Study Design & Implementation*):

**Eligibility & Roles**: Demonstrated knowledge, *prior experience &/or skills undertaking one or more of the 'participant activities' and 'stages of the project' (listed below) in retrospective studies evaluating accuracy of methods used in risk prediction of health outcomes/disease*, preferably evaluations of risk prediction accuracy comparing observed risk of cardiovascular disease in retrospective cohorts vs. machine learning algorithm&/or risk calculators routinely used in the standard of care for risk prediction of cardiovascular disease among diabetics.

-Conceptualization;

-Study design;

-Planning/protocol development;

-Project management: Coordination &/or implementation of projects;

-Analyses of accuracy;

**1.2.-Pre-IRB Protocol Peer Reviewers**:

-Peer review of IRB project protocols;

**1.3.**-**Data Scientists** *(broadly defined)***:**

* **Machine Learning Computational Scientists and**
* **R Programming Data Managers, Multi-site Confidential Data Access Logistics Specialists, & Statistical Analysts:**

**Eligibility & Roles**: Demonstrated knowledge, prior experience &/or skills (incl. pre-/post docs enrolled in a program for ongoing technical preparation) for undertaking one or more of the following data science 'participant activities' and/or 'stages of the project':

**1.3.1. Machine Learning Computational Scientists**

-Risk prediction machine learning algorithms;

**1.3.2. R Programming Data Managers, Multi-site Confidential Data Access Logistics Specialists, & Statistical Analysts:**

-R programing to perform one or more of the following:

--Data management planning and R programming to codify standardized requirement codebooks for data preparation and recoding to generate standardized data inputs to facilitate common analyses across diverse datasets;

--Data management planning and R programming to facilitate multi-site studies including protocols and logistics for assurance of secure and confidential de-identified/unlinked data access and accommodation of diverse data source with varying access-permission regimes;

--Analyses of health outcome/disease risk prediction using machine learning algorithms within R programming;

--Analyses of accuracy of risk prediction, including statistical methods for comparing observed risk of cardiovascular disease in retrospective cohorts vs. machine learning algorithm&/or risk calculators routinely used in the standard of care for risk prediction of cardiovascular disease among diabetics;

--Development of R web app dashboards using Shiny to embed results displays within the WatIF Health portal, specifically comparisons of results of CVD risk prediction derived from routinely used risk calculators vs. machine learning algorithms;

**1.4.**-**Research Report Authors**:

-Reporting of results, and development of manuscripts for peer review and publication;

**1.5.-Research Peer Reviewers** (Pre-publication peer reviewers):

-Peer review of project plans, results and reports;

**PHASE 2 CALLS FOR PARTICIPANTS: Call for Participation in Accuracy Evaluation Replication/Reproducibility Studies:**

**PHASE 2.1. CALL**

**Target Audience**:

-**Undisclosed Data-Contributing Performance Sites & Co-Investigators for Replication of Accuracy Evaluation**:

**Eligibility & Role**: Ability/authority to contribute 'undisclosed' data which meets pre-specified requirements for data sources which can be potentially used in multi-site replication studies;

**-Participation Objectives (Sponsoring agency/Data-Contributing Performance Sites):**

After completion of this project phase, participants will have contributed 'undisclosed data' to enable/facilitate Accuracy Evaluation Replication/Reproducibility Studies, and thus receive a 2-year license for early adopters of R web app dashboards using Shiny to embed results displays within the agency's health or WatIF portal, specifically displaying for clinician use a comparison of results of CVD risk prediction derived from routinely used risk calculators vs. machine learning algorithms;

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