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Ethical Aspects of Human Genetics: AI Tools for the Prediction of Obesity Related Vascular Diseases (AI-POD)

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About me!

Home University: University of North Carolina Wilmington c/o 27’

Major/Minor: Biology/Neuroscience

Host University: KU Leuven

Future Plans: To attend medical school upon graduation with the intent to specialize within the neurological field, and hopes of also being involved in neurodegenerative disease research in the future.

About AI-POD:

Overall Objective

To develop and substantiate AI tools which when deployed will predict and access risk for cardiovascular diseases in persons with obesity. This includes, but is not limited to, the creation of a personalized management approach, as well as a risk score to be shared with both patient and physician.

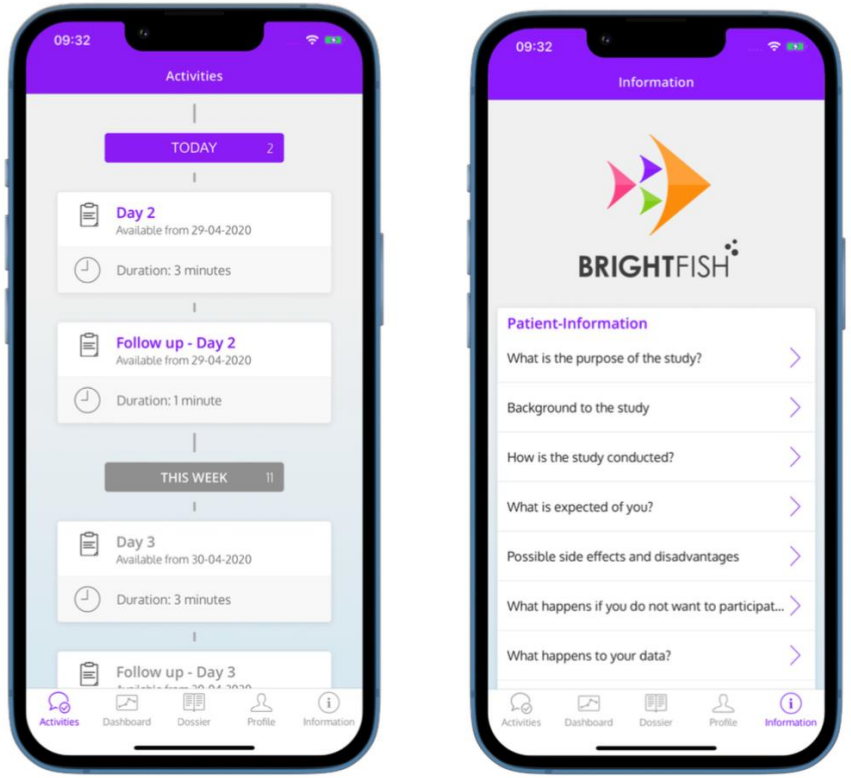

Fig. 2: Example of what the interface of the Citizen App would look like from patient's perspective.

Our complete team consists of 11 organizations across the EU and UK, with KU Leuven's Biomedical Ethics team being one.

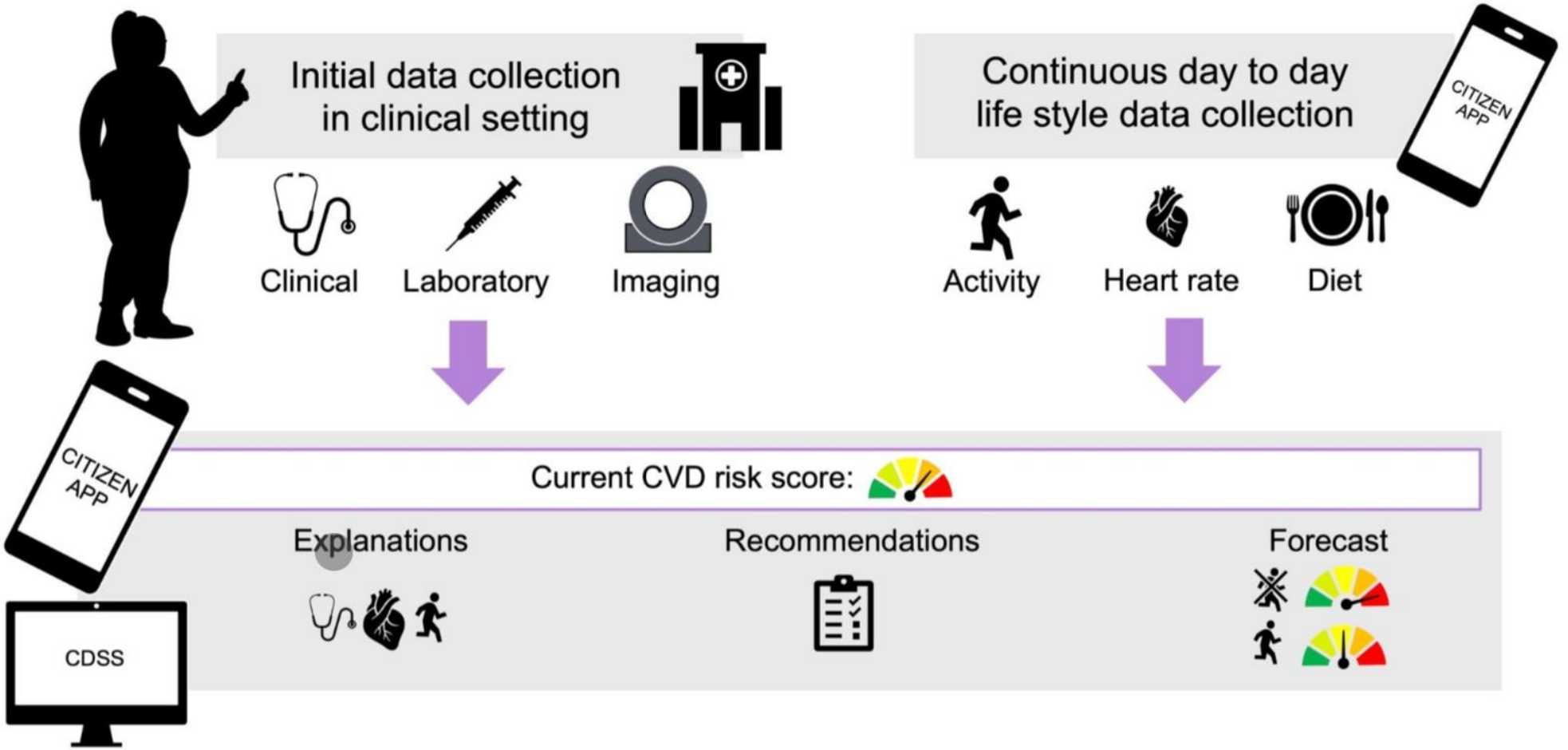

Fig. 3: Visual representation of the inputs of data from both clinician and patient, which is then used to create a risk score and other benefits within the Citizen App.

Our work package

Our team is working to address ethical, legal, and societal implications to implement AI-POD, as well as methods to recruit and engage its users.

1. Analyzing current governance framework on implementing AI in healthcare

2. Exploring ethical concerns/barriers towards AI-based decision making in imaging based prediction

3. Decipher acceptability, desirability, and current satisfaction of users of the Citizen App*

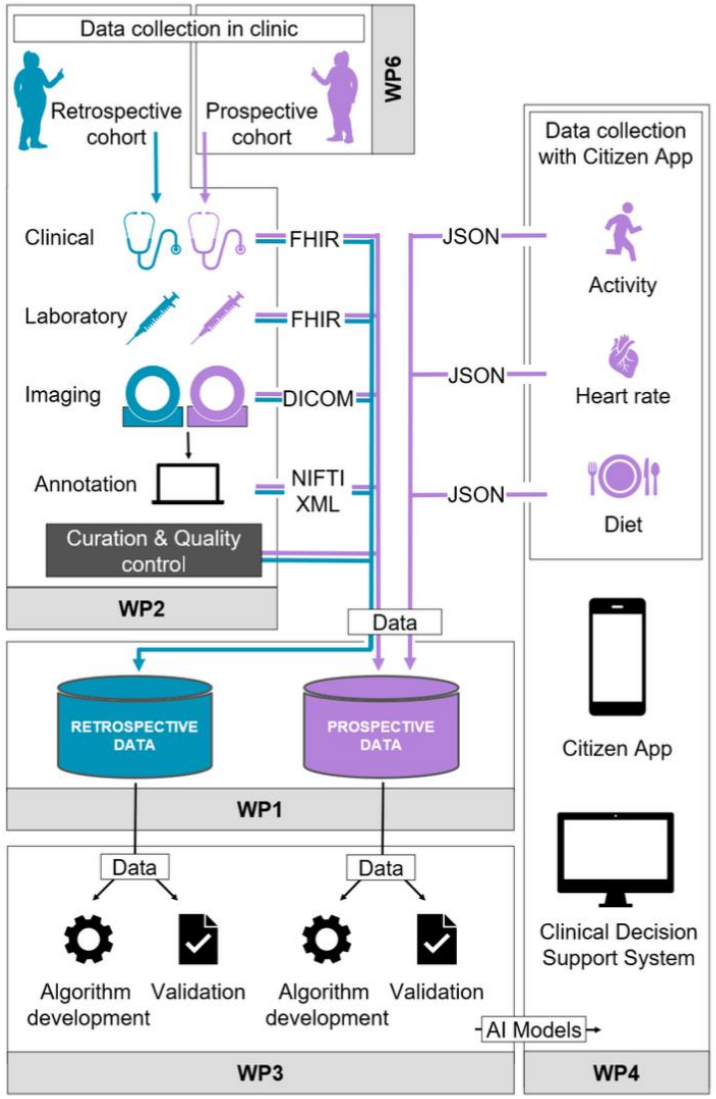

Fig. 4: Depiction of data collection and flow in the creation of AI-POD.

* While apart of the work package I am not involved in this task

Analyzing current governance framework on implementing AI in healthcare

Systematic Review

Search string included:
"Ethics" "AI" "Healthcare" and "Risk Score"

Databases:
PubMed, Scopus, and Web of Science

What's next:
Screen full text articles for eligibility

FIGURE 1: Identification and selection of articles.

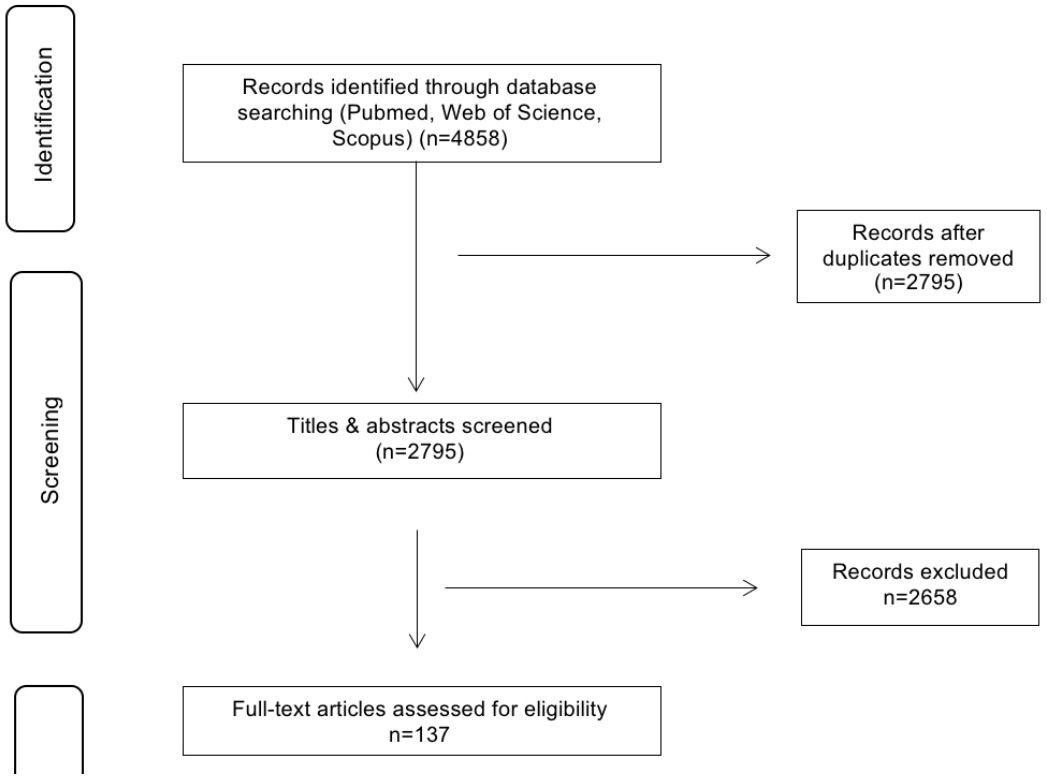

Fig. 5: Basic PRISMA diagram used to record systematic review process.

Exploring ethical concerns/barriers towards AI-based decision making in imaging based prediction

Conducting interviews & coding outcomes

What's next:
We are continuing to conduct interviews and expand our data where it will then be used to implement and integrate AI-POD to the best ability given the findings.

Attitude towards AI in healthcare

- Attitude
  - Positive
- Positive aspects
  - Add-on for physician
- Concerns
  - Black box
  - (Need for) human factor in decision-making
  - Unsure of best practice
  - Trustworthiness of AI
    - Training content and depth
  - Cost
    - Can also save costs
  - Liability

Experience with AI in healthcare

- Field
  - Radiology
  - Ophthalmology
- Performance of AI
  - AI outperforms physicians

Fig. 6: Example of what the coding tree creation process could look like.

What are some of the things we've found?

Positives:

- Attitudes are overall hopeful
- Visualization of progress
- Extra pressure may be motivating
- Physicians will continue to be involved

Concerns:

- Smartphone literacy
- Data Integration
- Balancing commitment with motivation
- Economic motivations
- Data bias
- Preventative measures will not reverse current state

Questions?

References:

Trustworthy AI Tools for the Prediction of Obesity Related Vascular Diseases. 2022. Contract No.: 101080302-2