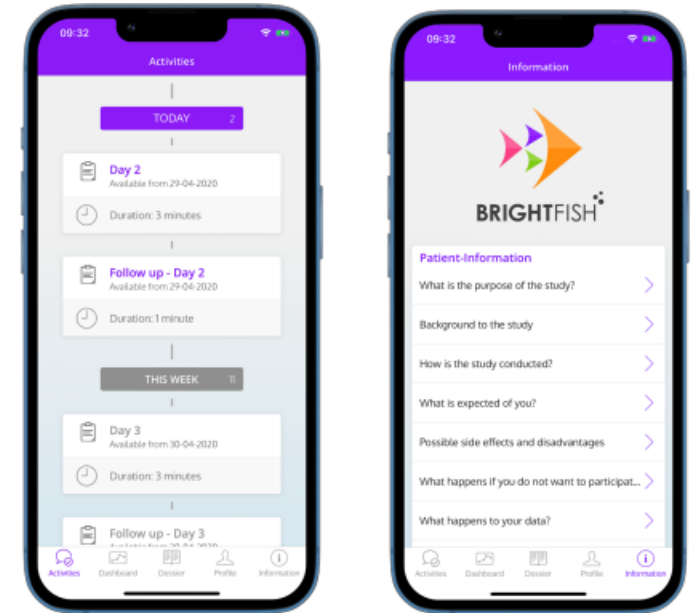


Application of AI Tools for the Prediction and Management of Obesity-Related Vascular Diseases: Ethical and Social Considerations



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About Me



- ❑ Home University: Rutgers University, c/o 2024
 - ❑ Major: Public Health
 - ❑ Minor: Women's and Gender Studies
- ❑ Host University: KU Leuven
- ❑ Future Plans: Grad School, eventually work in health policy with a focus on women's and reproductive health issues

Main Objectives

- Address the societal and ethical implications involved in the development and validation of AI tools for the assessment and prediction of cardiovascular risk in obese persons
 - Integrate real-time monitoring of diet and lifestyle with data acquired at one-time point (clinical, laboratory, imaging) to provide a continually updated risk score
 - Submitted as proposal to Horizon Europe Framework Programme (HORIZON) - Staying Healthy (two-stage 2022)

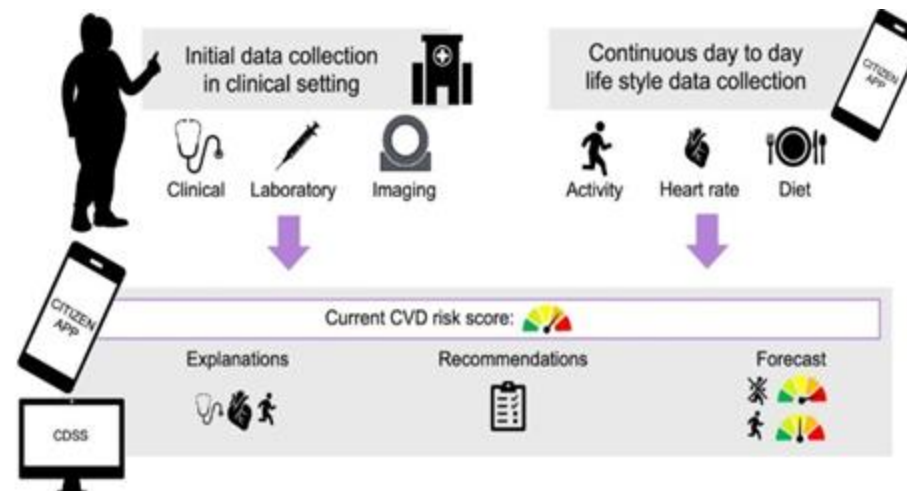
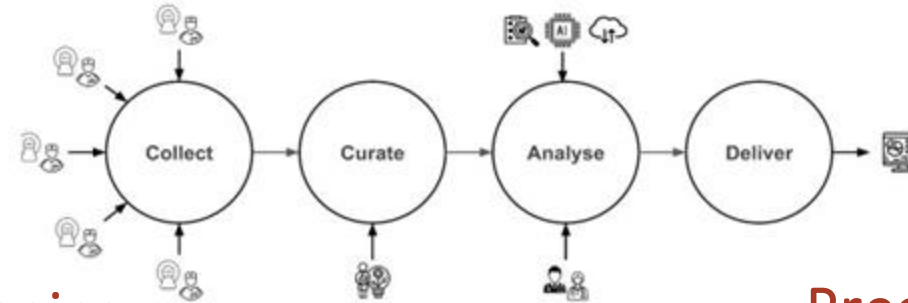


Fig.1: The empowered citizen has continual access to risk-scores based on cutting edge clinical information and day to day life style data. The AI-POD Citizen App provides actionable explanations and recommendations based on the AI models. The AI-POD CDSS provides in-depth information and links to guidelines to support treatment and patient management decisions by clinicians.

Current Applicable Uses of AI Tools with Cardiovascular Health



Phenomapping

Technique in which all the relevant patient data including detailed clinical, laboratory tests, echocardiography, and imaging studies were analyzed by AI-based unsupervised deep learning algorithms (Mathur et al. 2020)

Precision medicine

Utilises molecular information (genomic, transcriptomic, proteomic, metabolomic, etc), phenotypic and health data from patients to tailor disease prevention and treatment (EFPIA, 2023).

Implications regarding CVD & Obesity

CVD & Gender Bias

- The screening and risk practices of cardiovascular disease have historically been centered around men's presentation of the disease.
 - Underrepresentation of women in research partially explains the incomplete understanding of CVD symptomology and presentation in women
 - Sex and gender differences in the risk, presentation, treatment, and research of CVD.
 - Resulted in women being disproportionately affected by CVD
 - Biological differences
 - Biases in both patients, health professionals, and societal norms (Gauci et al. 2022).

Stigmatization of Obesity & Medical Bias

- Substantial empirical evidence that people with obesity elicit negative feelings such as disgust, anger, blame and dislike in others, (Phelan et al. 2015)
 - “Many healthcare professionals hold negative attitudes about obesity, including stereotypes that affected patients are lazy, lack self-control and willpower, are personally to blame for their weight, and are noncompliant with treatment” (Rubino et al. 2020)
 - Quality of health care is adversely affected by weight-based stigma.

AI Specific Ethical Concerns



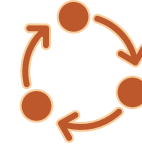
AI Provided Prognosis/Diagnosis

Must be communicated in informed consent. Appropriate mechanisms to ensure questioning and redress for individuals/groups if adversely affected



Autonomy

AI technology must be fully explainable, risks must be clear in informed consent



Algorithmic Bias

Reproduction of flaws present from older data

Questions?

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