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POSTER ABSTRACT

Anticipating multisectoral use of services with the support of AI

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Juha Koivisto[1], Teemu Keski-Kuha[1], Jaakko Lähteenmäki[2], Heba Sourkatti[2], Petri Kettunen[3], Juha Vesala[4]

1: Finnish Institute For Health nnd Welfare, Helsinki, Finland
2: VTT Technical Research Centre of Finland Ltd, Espoo, Finland
3: The University of Helsinki, Helsinki, Finland
4: The University of Lapland, Rovaniemi, Finalnd

Introduction: This paper presents the preliminary results of a collaborative R&D project which aims at developing artificial intelligence (AI) supported anticipation of multisectoral use of services. If we were able to predict the escalation of health and social problems of clients and the use of several different services, we could plan and offer them early preventive services with the objective of improving the quality of life and reducing the costs of service provision in the longer term.

Approach and methods: The multidisciplinary project in progress collaborates at four spheres of research and development within the elderly care of one welfare region in Finland.

1) Anticipatory management practices concerning risk client groups and anticipatory case management practices concerning individual clients in risk are being developed supported by predictive AI technology. The requirements concerning the information the AI based prediction model should produce to the managers and to the case managers have provisionally been defined. The current practices are co-studied, and the new practices supported by AI are co-designed by involving the “relevant” health and social care managers and practitioners in the welfare region.

2) A machine learning (ML) predictive model based on health and social care data is being developed. The prediction model will be developed based on retrospective analysis of health and social data of the welfare region. The available data includes clinical data recorded during healthcare encounters, decisions, and usage of social services as well as physical function assessments. The data is used to train and test potential machine learning algorithms for predicting future service use of the elderly individuals based on their current health status and past use of services.

3) The implementation of the AI/ML model within the IT infrastructure and information systems (IS) in use will be supported and investigated. The developed ML model would eventually be integrated into the IT/IS environment of the case organization. That entails connecting the specific data sources, running the model computations, and passing the results to the digital workflow of the care production management for knowledge management.

4) The EU and Finnish legislation that regulate the use of personal health and social data in the development and use of AI based predictive models is being analyzed. Requirements and potential limitations imposed by current legislation on the use of predictive models are identified. In particular, the strict conditions applicable to making automated risk assessments of individuals for purposes of taking anticipatory measures are analyzed and avenues for meeting them by health and social care organizations are discussed.

Results and outputs: Working on these four spheres, the project produces a generic model on developing the anticipation practices of multisectoral use of services with the help of AI technology. The model will available to all the organizations which are developing AI based anticipation of multisectoral use of services.

Key words: Anticipation, prediction, health and social services usage, machine learning model, AI software, legislation, elderly care