ABSTRACT

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Designing and Managing Interoperability and Integration of Intelligent and Ethical 5P Medicine Ecosystems

For improving quality and safety of healthcare under the challenges of aging societies, exploding costs and growing expectations, health systems around the world undergo a transformation of medicine from phenomenological through evidence-based, person-centered, personalized medicine up to systems medicine. The latter combines personalized, preventive, predictive, participative precision medicine (5PM), supported by technology. It considers individual health status, conditions, genetic and genomic dispositions in personal social, occupational, environmental and behavioral context, turning health and social care from reactive to proactive by transforming it from art to science. The resulting intelligent systems shall meet ethical principles and standards. For designing and managing interoperability and integration of 5PM ecosystems, we have to understand and formally represent the world of sciences and practices behind the health and social care ecosystem as highly dynamic and multidisciplinary construct in variable context. As the different human and non-human actors belong to different policy domains and disciplines, using different methodologies, terminologies, and ontologies, we must represent the 5PM ecosystem deploying a system-oriented, architecture-centric, ontology-based, policy-driven approach standardized in ISO 23903.

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