Health Informatics – ICT and personalized healthcare

Health informatics can be defined as a "scientific discipline that is concerned with the cognitive, information processing and communication tasks of healthcare practice, education and research, including the information science and technology to support these tasks"
[SOURCE: ISO/TR 18307:2001, 3.73]

A variety of ICT technologies can support the digitization and personalization of healthcare, including software engineering, cloud computing, artificial intelligence, internet of things, etc.

Technical Committees working on Health Informatics

- International level -

ISO/TC 215 - **Health Informatics**

- **Scope:**
  Standardization in the field of health informatics, to facilitate capture, interchange and use of health-related data, information, and knowledge to support and enable all aspects of the health system.

- 232 standards published
- 57 ongoing projects
- 1 Sub-committee, 7 Working Groups, 4 Joint Working Groups (including one on AI-enabled health informatics)
- 2 national delegates

- European level -

CEN/TC 251 - **Health Informatics**

- **Scope:**
  Standardization in the field of Health Information and Communications Technology (ICT) to achieve compatibility and interoperability between independent systems and to enable modularity. This includes requirements on health information structure to support clinical and administrative procedures, technical methods to support interoperable systems as well as requirements regarding safety, security and quality.

- 115 standards published
- 21 ongoing projects
- 2 working groups

Standards related to personalized digital health and the use of Smart ICT in healthcare

The following table lists the published standards and projects related to the use of Smart ICT (IoT, AI, Cloud) in healthcare and resulting personalization of health services and challenges.

Published standards related to ICT and personalized healthcare

ISO/TS 23535:2022
Health informatics — Requirements for customer-oriented health cloud service agreements

Scope:
This document describes a core set of cloud service agreements for customer-oriented health cloud services.
This document covers a customer-oriented cloud service agreement that can be used in healthcare organizations and public health centers that use health cloud services.
This document defines key characteristics in the health cloud service agreement that are indispensable in providing optimal health/healthcare management functionalities. Privacy and security features are considered outside the scope of this document and are covered in ISO/TR 21332.
The purpose of this document is to present matters to be considered (e.g., cloud type, components, key characteristics) by stakeholders involved in the implementation of cloud computing in hospitals or healthcare organizations. The potential users of this document are mainly 1) IT managers of hospitals, 2) hospital management, and 3) cloud service providers and cloud partners that provide services to healthcare institutions.

ISO/TR 21332:2021
Health informatics — Cloud computing considerations for the security and privacy of health information systems

Scope:
This document provides an overview of security and privacy considerations for Electronic Health Records (EHR) in a cloud computing service that users can leverage when selecting a service provider.

Projects related to ICT and personalized healthcare

ISO/CD TS 6201
Health Informatics — Personalized Digital Health — Framework

Scope:
This document specifies a framework for the interoperability of transnational health records and services that are tailored for personalized digital health informatics, with a primary focus on supporting individuals and their caregivers. It establishes a common set of requirements, data item specifications, and concepts necessary for multi-level interoperability, as well as for dynamic consent and knowledge sharing.

ISO/CD 9472-10000
Health informatics — Personalized health navigation — Part 10000: Architecture

Scope:
Standardization of a reference architecture that applies the core elements of navigational informatics technologies, (e.g., location status determination, destination objectives, and dynamic pathway guidance), to personalized health navigation including health and wellness assessment, health objectives identification and specification, and pathway determination including coordination with healthcare providers and services. The architecture will support real-time monitoring and status determination, and identification of emerging health navigation challenges as well as existing health conditions, including chronic, acute, and episodic. This document provides comprehensive model-based systems engineering specifications, allowing for implementation architectures that support a diverse set of infrastructure and operational approaches. Guidance is provided for conformant implementation architectures and system components.

ISO/IEC AWI TR 18988
Artificial intelligence — Application of AI technologies in health informatics

Scope:
This document provides an overview of the state of the art of AI-enabled Health (AIHI).
This document will describe the properties, factors, available methods and processes relating to the use of AI inside health informatics applications to effectively realize the potential benefits for healthcare use cases.
This document will identify use of AI concepts and terms, for purposes of developing AIHI-related standards, such as mapping and categorization.