



D5.2 Report on identified cross-border use cases

Information note

WP5 Innovative Use of Health data

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Purpose

This note provides information about the objectives, scope and structure of Deliverable 5.2 established in WP5 specific to identified cross-border use cases.

Objectives

The overall objective of WP5 is to support the application of good practices in Member States (MS) and provide guidance at European Union (EU) level on handling big data in health within the existing EU regulatory framework on secondary use of personal data, and consequently to ease the uptake of innovative usage of data across the healthcare sector for the benefits of society, individuals and performance of MS health systems.

Task 5.2 *“Sharing and learning best practices on European level”* foresees to:

- define and use methods to identify underlying needs and barriers experienced by stakeholders (pros & cons) affecting efficient and effective sharing of best practices in order to reach the objectives of the WP and the Joint Action.
- investigate already formalized cross-border use cases such as European Reference Networks for rare diseases as well as practical solutions in Research and Development (R&D) including analytics in order to identify new possibilities for innovative use of big data on the European scale, to assess feasibility of network optimization for cross-border IT infrastructure and data flow management and to enhance interdisciplinary research and openness, the most potential users and stakeholders that could benefit.

The purpose of D5.2 is to identify real life applications of big data in public health which are implementable and scalable to EU level. This will be achieved by collecting and reviewing cases from academia, businesses, service providers etc., and also analysing and synthesizing these cases.

Scope

D5.2 *“Report on identified cross-border use cases”* will investigate already implemented cross-border use cases of big data within the frameworks of existing actions such as European Reference Networks for rare diseases as well as in R&D including analytics. The deliverable will further assess pros & cons of such data sharing experienced by stakeholders, and finally present practical use cases with potential for European scale benefits.

The scope of the deliverable will be based on the definitions of innovation, big data especially in health, interoperability and cross-border use cases. The scope of the deliverable will be broadened by reviewing relevant big data applications in fields other than health, where innovative use of data has been demonstrated with the aim to explore the possibilities of employing similar ideas in the field of health.

Finally, the deliverable will address the question of how already existing data sharing ecosystems across EU can be utilized and what the long-term perspectives can offer to Member States.

Methods

A literature review with the main focus on big data applications in health and innovations from 2016 onwards will be performed to cover recent developments. Literature will be selected and reviewed and subsequently, the identified use cases and stakeholder engagement will be analysed. In addition, four reports mentioned below will be reviewed closely. A systematic review *Study on Big Data in Public Health, Telemedicine and Healthcare* covers topics of big data applications in health and innovations before 2016¹. Two other relevant reports are *From Innovation to Implementation eHealth in the WHO European Region*² and *eHealth innovations in Western Europe*, dealing with programs and initiatives by the countries which have more advanced healthcare ICT infrastructure³. Yet another closely related report is *Report on main eHealth activities outside of the EU* (Joint Action to support of the eHealth Network, JAseHN, Deliverable 8.1.4 in WP8)⁴. Other methods such as interviews with the partners and stakeholders will be employed to collect information which is not available in published form.

Deliverable structure

D5.2 will be delivered as a report and will be mainly built upon information from case studies on innovative use of data in the field of public health. It will include maps, infographics and finally a schematic diagram of a synchronized data platform. Here, we will attempt to provide a model flow chart for data processing and synchronisation needed for pooling data from various registers/studies/cohorts/countries for analysis.

In the case studies certain information will be extracted and analysed, e.g. on diseases and population groups addressed, on types of technology, innovations and big data analytics algorithms used, on the data producers (undertaken by academia, industries, joint ventures) and on the scope of scalability to other countries in Europe and globally etc. In addition, innovations or technologies acceptability by citizens, challenges in combining data from diverse sources and related database management, opportunities in the field of health, and interpretation and sharing of the results especially by an individual will be described and discussed. Perceived needs and barriers of users will be analysed as part of the case studies.

References

1. https://ec.europa.eu/health/sites/health/files/ehealth/docs/bigdata_report_en.pdf
2. http://www.euro.who.int/_data/assets/pdf_file/0012/302331/From-Innovation-to-Implementation-eHealth-Report-EU.pdf
3. <http://digitalhealthage.com/ehealth-innovations-in-western-europe/>
4. https://ec.europa.eu/health/sites/health/files/ehealth/docs/ev_20180515_co27_en.pdf

Annex: Working definitions

- **Health data:** patient data on clinical information (health records as well as self-reported), data from apps and wearables, any background data that will give insights on the social determinants of health.
- **Big data in health:** Consolidated data from existing fragmented data sources for the purpose of understanding, forecasting and improving health and health system status, needs and performance.
- **Big data analytics in health:** Statistical learning methods and algorithms applied to big data in health, which include descriptive analytics, mining/predictive analytics to support evidence-based decision making, analytical techniques that are ideal for analyzing a large proportion of text-based health documents and other unstructured clinical data (e.g., physician's written notes and prescriptions and medical imaging).
- **Innovative use of health data:** The process of translating an idea or invention into a good or service that creates value or for which customers will pay. To be called an innovation, an idea must be replicable at an economical cost and must satisfy a specific need. Innovation involves deliberate application of information, imagination and initiative in deriving greater or different values from resources, and includes all processes by which new ideas are generated and converted into useful products (<http://www.businessdictionary.com/definition/innovation.html>) The figure below illustrates the definition of innovation (source: <http://timkastelle.org/blog/2012/09/what-is-innovation/>).

