HOLISTIC APPROACH TO THE USEFUL INFORMATION REGARDING HEALTH CARE: CROWDHEALTH USE CASE.
Health Department La Fe, Valencia
  - Who we are?
  - What we have?
Real-world data for improving health care
  - The obesity public health problem
EU CrowdHEALTH Project
  - Holistic Health Records
Wishful thinking
Who we are?

- Health Research Institute LA FE (IISLAFE) is a research institution that manages Health Department Valencia-La Fe (La Fe) research activity.
  - La Fe covers geographical area located in the south area of the city of Valencia
  - La Fe coordinates all the healthcare services provided in the territory, from primary to tertiary care, covering 300,000 inhabitants directly and a catchment area adding up to 515,000 persons.
  - The Department has a central management based in the Hospital La Fe, the biggest reference hospital in the region and fifth in Spain.

What we have?

- Health Department La Fe has deployed Electronic Health Records at different care levels.
  - La Fe has a volume up to 20 million of data related to our Health Department organized in a system of datamarts.
  - Data warehouse from several information systems including: clinical activity and assists areas, diagnostics systems and hospital management.
Real-world data for improving health care

- Datamarts already in use
- Datamarts in preproduction stage
- Data exists but they are not ready to be used (access not granted)

CrowdHEALTH
Real-world data for improving health care

**REAL-WORLD DATA**

- Business Intelligence & Dashboards
  - Risk stratification & predictive models

**Big Data Technologies for Pattern Analysis**

- Chronic patients with complex multimorbidity
- Hospital resource utilisation
- 30-day readmissions
- One-year mortality

- Admissions & Discharges
- Emergency room
- Surgery
- Morbidities
- Health functional areas
  - Diabetes
  - Prostate cancer
  - Breast cancer
  - Inflammatory bowel disease
  - Rheumatic disease
  - …

- Diabetes Mellitus Type II
- Diabetes complications
  - Cardiopathies
  - Neuropathies
  - Retinopathies
What we need?

- Dietary habits
- Physical activity habits
- Sleeping habits
- Sedentariness habits
- Compliance with medication
- Monitoring with remote sensors
- Monitoring with smartphone apps
- Socio-demographic information
- Evidence-based decisions

OBESITY AND OVERWEIGHT

- Estimated prevalence in the Spanish adult population is
  - 39.3% overweight
  - 22.8% obesity
EU CrowdHEALTH Project

Disease Use cases
- Heart failure
- Obesity
- Chronicity
- Breast cancer

CrowdHEALTH Health Policies Development & Impact Assessment

CrowdHEALTH Social Holistic Health Records
- Formulated Networks of Holistic Health Records
- Experience Sharing
- Collective Knowledge

CrowdHEALTH Real-time Big Data Management

Information Gateways
- Medical Centers
- Laboratories
- (Wearable) Sensors
- Monitoring Sensors
- Applications
- Online platforms

Digital collaboration

Collective Knowledge
- Real-time facts and risks
- Predictive algorithms

Patient Pathway Management
- Situational awareness
- Data fusion and interpretation
An overview of wishful thinking

Public Health and Healthcare goals

Big Data for wellbeing and health

Health relevant factors

- Health system
- Human biology
- Environment
- Life Style

Open data

Healthcare and Public Health system data
Education and school data
Regional / City Hall data
Community / Social organizations data
Government and Public Adm. data

IoT, Sensor data, Smart City, Social Media
Primary, secondary, tertiary sectors data
Private companies data
Commerce / Tourism / Leisure
Factory, industry, transportation, technology

Based on the figure by Victor Osorio in
https://es.linkedin.com/pulse/bigdata-y-factores-determinantes-de-la-salud-victor-osorio
Thanks for your attention!

Contact:
Dr. Salvador Tortajada Velert
Unidad Conjunta de Investigación en TIC Aplicadas a Reingeniería de Procesos Socio-Sanitarios La Fe (eRPSS)
Mail: tortajada_sal@gva.es
Tel: (+34)961245717 Ext:411692