Deveopment Of Remote Monitoring, Disease Eolving Modelling And Intelligent Adaptive Care System For Diabetes

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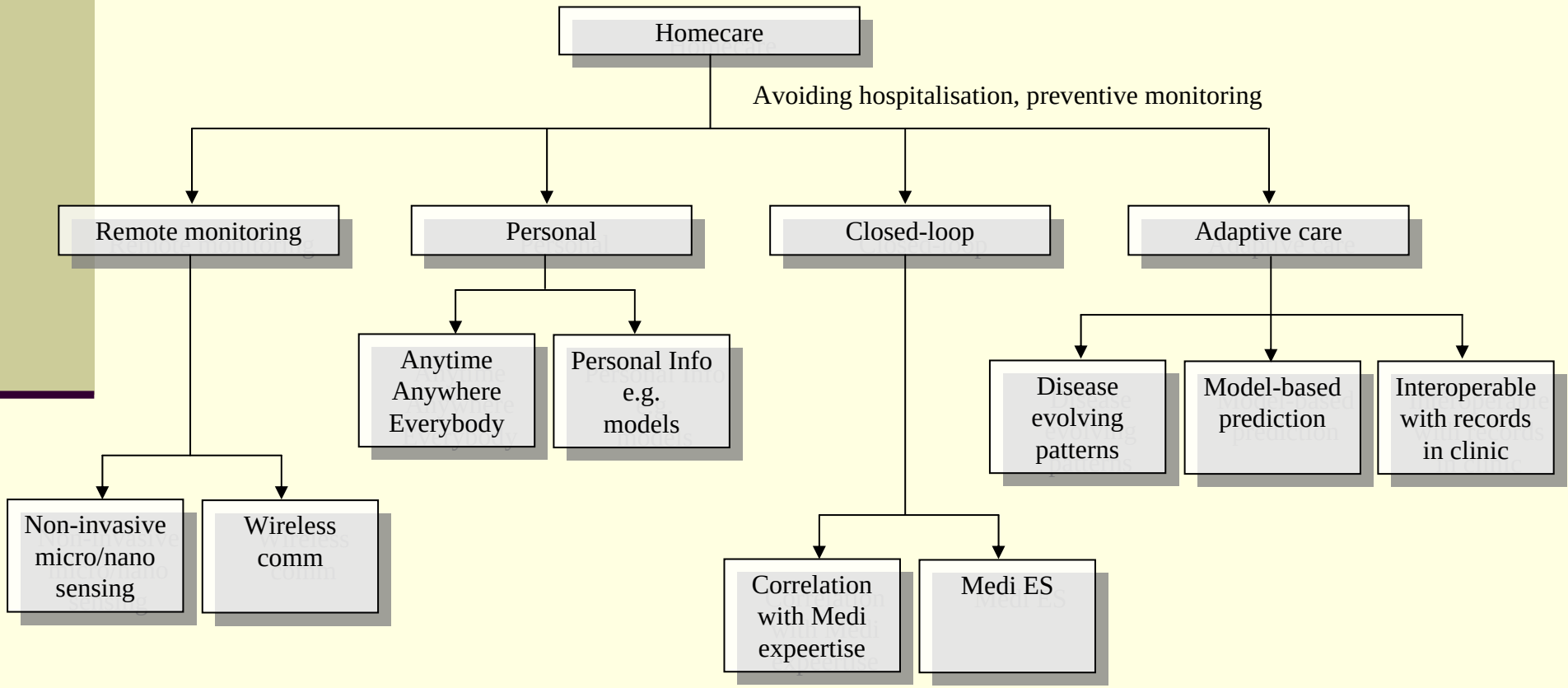
DIABETES

- Diabetes is the top 5 chronic diseases in Europe (according to WHO)
  - Currently there are 20.8 million patient in Europe
  - This figure is expected doubled in 2030
- Diabetes is a typical chronic process that requires close monitoring and care
  - It take some time to develop
  - It requires patients to participate into “managing”, otherwise
  - It can progress to serious diseases, including kidney diseases, cardiovascular diseases, nerve damage, retinal damage, microvascular damage, etc
  - It is very costly to public health sector and patients

FP7 OPPERTUNITY

- Personalised Healthcare (Challenge 5)
  - Personal health systems (Objective 5.1)



PROJECT IDEA

- Aim

  To develop non-invasive micro/nano sensors, disease evolving pattern recognition techniques, predictive modelling techniques, and medical ES, and integrate them into a closed-loop homecare system to facilitate personal healthcare for chronic diseases patients.

PROJECT IDEA

- Objectives
  - To develop non-invasive sensors (micro/nano), and portable and sleep monitoring devices for remote and multi-parametric health condition data collecting
  - To develop medical expertise based data fusion algorithms which group data about patient's health condition collected from sensors for health condition modelling, prediction, and diagnosis
  - To develop disease evolving models, including automatic feature extraction and selection for recognising and updating patients' disease patterns and disease evolving models for predicting the health conditions of a patient
  - To develop medical Expert Systems that is able to provide medical advices for patients according to their health conditions
  - To explore wireless communication techniques
  - To integrate the above to a closed-loop homecare system and to develop the prototypes of the system
  - To demonstrate the feasibility of the system developed in personal healthcare
  - To identify the necessary changes in the current healthcare process and to provide healthcare process management methodologies for integrating the system developed into the current healthcare process
  - To analyse social and economic impacts of the system developed to chronic diseases care

EXPERTSE REQUIRED

- Non-invasive micro/nano sensors:
  - Sensing techniques
  - Micro/nano manufacturers
- Signal processing:
  - Data fusion
- Computing:
  - Feature extraction
  - Pattern recognition
  - Modelling
  - ES
- Medical:
  - Chronic disease experts
  - Healthcare experts
  - Clinic/hospitals
  - Management / re-engineering
- IT:
  - Databases
  - Wireless communication
  - IT equipment (software/hardware integration)
  - Training
- Medical equipment manufacturers
  - Monitoring devices
  - Portable devices
- Social and economic experts
  - Social impact analysts
  - Economic impact analysts
- Consultant group consists of medical and healthcare experts.