Data Reliability

Evaluating the reliability of eHealth data

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Home Healthcare

Goals
- Monitor chronically-ill / elderly
- Improve quality of patient’s life
- Reduce cost of hospitalization

Features
- Patients take medical measurements at home in an unsupervised environment
- Doctor evaluates patient health condition remotely

Proposed Architecture

Goal: Assist the Doctor in decision making

Data Qualifier
- Evaluate quality aspects of medical measurements

Troubleshooting
- Indicate the root causes of low quality

Quality Indicator
- Evaluate overall medical measurement quality
- Visualize the results

Feedback System
- Provide advices
- Improve reliability of future measurements

Reliability of Medical Measurements

Physicians need to rely on patients’ measurements
- Evaluate the patient’s health condition
- Prescribe appropriate treatment
- Measurements’ quality affect physicians decisions

Quality Issues
- During the lifecycle of information
- Different quality aspects
  - Stability
  - Timeliness
  - Device accuracy
  - Sensor application
  - Data Authenticity and Integrity

Application: RRD C3PO Activity Monitoring System

Procedure
- Sensor collects and sends activity (10 seconds)
- Smartphone aggregates activity (1 minute)
- Aggregated activity is sent to Server

Troubleshooting

Ambiguous interpretation
- Quality issue or Health problem?
- Investigate root cause of poor quality

Troubleshooting
- Interactive mechanism
- Workflow based

Impact

Increased adoption of eHealth services by
- Establishing trust between healthcare providers and patients
- Supporting acceptance of new services by Healthcare providers and patients