Belgian Meaningful Use Criteria (BMUC)

Introduction

According to the WHO (2012) an Electronic Health Record (EHR) is a longitudinal record of patient health information generated by one or more encounters in any care delivery setting.

Already for many years, the Belgian government recognized the need for a large scale deployment of solid EHRs, built to share information with other health care providers and organizations so they contain information from all clinicians involved in a patient's care.

A Belgian eHealth action plan 2013-2018 was published several years ago, but regarding the deployment of EHRs in hospitals, the government realized in 2015 that there was a need for an accelerated program, also recognizing the importance to establish a financial incentive program to realize their ambition.

A similar situation occurred in the US, where a federal EHR incentive program was finalized in July 2010. This resulted in the publication of meaningful use requirements for hospitals.

In this document we define a set of meaningful use criteria adapted to the Belgian situation. The described meaningful use criteria below are based on the US experience, the publication of "Framework for an Electronic Patient Record Functionalities", in 2014. It is the result of a concertation of hospitals all over the country , hospitals of different sizes and different degree of ICT maturity.

We thank Zorgnet-Icuro for the preparatory work.

Meaningful use

In the US, Meaningful Use is obtained in 3 stages:

- In Stage 1, basic rules are set for the electronic capture of clinical data, including providing patients with electronic copies of health information.
- Stage 2 expands the criteria with a focus on ensuring that the meaningful use of electronic health records supported the aims and priorities of the National Quality Strategy. Stage 2 criteria encourage the use of health IT for continuous quality improvement at the point of care and the exchange of information in the most structured format possible.
- Stage 3 criteria are currently being written by the Centers for Medicare & Medicaid Services (CMS) rule makers

To receive the maximum possible Medicare incentive amount, hospitals had to achieve Meaningful Use Stage 1 by the end of 2013. Providers that achieved Stage 1 by the end of 2012 will move to Meaningful Use Stage 2 in 2014.

Midway through 2013, nearly two-thirds of hospitals in the US achieved Stage 1 Meaningful Use. Just over half (53 percent) of hospitals were able to achieve Stage 1 Meaningful Use by 2012 (these hospitals will lead the transition to subsequent stages of Meaningful Use, moving to Stage 2 in 2014 and Stage 3 in 2016).

To help potential program dropouts stay in the program, CMS adjusted timelines for meaningful use. In a 2014 final rule, CMS extend Stage 2 through 2016 and delayed the start of Stage 3 until 2017.

A similar approach can be taken in Belgium, provided the criteria are adapted to the local situation and a realistic implementation plan is followed.

Background

The Belgian government's documents often mention that an "integrated EPR" should be reached. The definition nor the architecture of such an integrated EPR is commonly known nor agreed upon. We didn't want to lose itself in a semantic discussion nor force a particular architecture upon the hospitals.

Instead we opted for a purely functional approach where functions and their roll out are required and not a particular implementation. We believe that the same goals can be met by different means. E.g. integration can both be achieved by messaging between systems as by implementing many functions in one holistic system. At least the core functionalities should be integrated and the data should be captured and managed according to the Original Source Principle.

The HIMSS EMRAM questionnaire is sometimes proposed as a measurement of EPR-maturity, but was deemed not to fit the purpose.

EMRAM certainly has its merits by identifying the levels of electronic medical record (EMR) capabilities, ranging from limited ancillary department systems through a paperless EMR environment. However, its currently used questionnaire is not suited for official Health Care Policy Initiatives. The EMRAM questionnaire originates from the HIS vendors association and this is reflected in the approach. It is more of a market opportunity questionnaire which gives the vendors an overview of the market situation in a particular country. A lot of the questions pertain to the presence of clinical subsystems, age of the these systems, planning on major upgrades of replacement of the system, etc… Little attention is paid to the actual scope of the roll out and the integration of the subsystems.

Even in the USA, where the EMRAM system was born, it is not used for official implementation measurement. Instead "meaningful use" criteria mentioned above were established and used.

Adaptation of the criteria to Belgian needs

The goal was to have ambitious, but realistic criteria. While it will still demand considerable financial and implementation effort, we believe these goals are reachable for most hospitals.

The criteria are divided in core criteria (mandatory) and menu items from which hospitals can choose.

- Core criteria are essential since they form the base upon which the other steps will be built. These are:
    1. Unique patient identification and description
    2. Problem list (active and past diagnoses)
    3. Allergy list
    4. e-prescription medication
    5. Drug drug interaction
    6. e-administration medication (linked to e-prescription)
    7. Care planning/nursing module
    8. Appointment scheduling
    9. Order-entry (RX/lab/consultation/…)
    10. Discharge letter
    11. Vital signs
    12. Informed consent registration
    13. Therapy limitation code
    14. Medische resultatenserver/Elements objectifs du dossier
    15. Automated communication with HUB's and interaction with eHealth

- A (yet to be defined) number of menu items can be selected by the hospital in order to prepare for a full EPR implementation in the future.
  Some of the menu items can become mandatory in a later step, thus becoming core from that step on.

  The following menu items could be considered:

    - OR planning
    - Intensive care module
    - PDMS module
    - EC (Emergency Care) module
    - CDSS
    - Advanced interaction checking (Drug-allergy, drug-disease, drug-pregnancy)
    - Chemotherapy prescription
    - Functional Localization of the patient
    - Structured Registration (Core in Step 3)
    - Genetic data
    - Mobile Health (Integrating Relevant Telemonitoring Data)

- Closed Loop Medication Administration
- …

Where a percentage should be reached, we propose a numerator and denominator that can be measured without too much effort.

Table of core criteria

Not reaching the criteria of a functionality for which a percentage less than 50% is demanded can be compensated by reaching the criteria of step 2 of another functionality (except for functionality 1, 10, 11 and 15).

Functionality	Step 1	Step 2	Step 3	Step 4
1. Unique patient identification and description	80%	90%	98%	98%
2. Problem list (active and past diagnoses)	20%	50%	80%	98%
3. Allergy list	30%	60%	90%	98%
4. e-prescription medication	30%	60%	90%	98%
5. Drug drug interaction	Yes	Yes	Yes	Yes
6. e-administration medication (linked to e-prescription)	30%	60%	90%	98%
7. Care planning/nursing module	0%	30%	60%	90%
8. Order-entry (RX/lab/consultation)	1 of 3 (50%)	2 of 3 (50%)	3 of 3 (50%)	3 of 3 (98%) + order sets (combined criteria 4&7&8)
9. Appointment scheduling	= criteria 8 (except lab)	= criteria 8 (except lab)	= criteria 8 (except lab) + Multiple Consult	= criteria 8 (except lab) + Multiple Consult
10. Electronic discharge letter	80%	90%	95%	98%
11. Vital signs	50%	65%	80%	98%
12. Informed consent registration	10%	50%	80%	98%
13. Therapy limitation code	10%	50%	80%	98%
14. Medische resultatenserver / Elements objectifs du dossier	80%	90%	95%	98%
15. Automated communication with HUB's and interaction with eHealth	80%	90%	95%	98%

The objectives for steps 4 will be reevaluated in 2018.

In 2018 there will be a reevaluation of the menu criteria. A profound analysis will determine which menu criteria should be added and which menu criteria could become core in later steps.

The existing core functionalities will not be rediscussed.

Core Criteria Description

1. Unique patient identification and description

Following demographics must be registered in a structured way: full name, date of birth, gender, nationality, National ID (in case of a Belgian civilian), address, phone number, preferred language, insurance information, name of general practitioner, (pass) photo when possible. It should be possible to register contact information: name, relationship to the patient and phone number. This information must be maintained on a regular basis, at each patient visit in the hospital. This patient information is accessible online anywhere in the institution.

One unique patient number should be used throughout all electronic systems that register patient related data. In case a patient has two patient numbers, these numbers should be linked together in a way so the users of the system can access all the information through one patient number. Processes to search for double patient numbers in a regular way should be implemented.

When the identity of the patient cannot be established at registration time, it should be possible to create a unique temporary patient number, so one can register data for this patient. When later the identity of the patient is established and his unique patient number is created or determined, the registrations linked to the temporary patient number have to be transferred to the actual patient number, or linked together.

Measure:

- Numerator: The number of unique patients in the denominator that have the listed demographic information available plus the number of unique patients for which a temporary patient id is created and no establishment of identity was available in the EHR reporting period of the denominator.
- Denominator: the number of unique patients in inpatient, one day care or emergency setting in a given EHR reporting period (to be defined).

2. Problem list (active and past diagnoses)

A persistent and managed Belgian SNOMED CT coded list of identified diagnoses or problems, or previous procedures performed, that may influence clinical decision-making and care provision. Problem lists are managed over time, hence giving a historical view of the patient's condition and may include:

- symptoms , diagnoses, allergies, devices in situ
- family and genetic information

- social problems, events
- nursing problems & risks
- functional (dis)ability,
- treatment and regimens
- interventions (done & planned)diagnostic procedures (done & planned)
- vaccinations (done & planned)

The source (e.g. the provider, the system id, or the patient, the location, time) of updates should always be documented for every item and version (unique Record ID with Timestamp).

The onset and end dates, if known, should be documented for every item. The problem list can be represented (based on the time status of each item) as historical, or / and as an "active" problem list.

Measure

In Step 1, more than 20 percent of all unique patients hospitalized in the reference period (denominator) have at least one SNOMED CT coded entry or an indication that no problems are known for the patient recorded as structured data (numerator).

> **Important remark:** The target date to reach this goal is relative to the availability of the Dutch/French translation of the main SNOMED CT diagnostic codes. The implementation has to be at least two years (one year for technical development and one year for implementation)one year after the final availability of the translated codes.

3. Allergy list

Manage patient allergies including reaction for any allergen, intolerance and adverse reaction lists (to drug, dietary). The allergy list is used when allergenic conditions are encountered in other modules of the EPR (drug prescription,…).

Step 1 : Recording of 2 type of allergies (drugs, food, …) and showing the list of existing allergies at e.g. presciption time should be sufficient (due to lack of structured datasets)

Step 2: Automatic triggering of alarms when allergenic conditions are encountered (to be defined in more detail)

Measure

- Numerator: The number of unique patients in the denominator that have at least one entry in their allergy list (or an indication of no known allergies). Reconciliation of the entry "no known allergies" is necessary at each new eligible contact.
- Denominator: the number of unique patients in inpatient, one day care or emergency setting in a given EPR reporting period (to be defined).

4. e-Prescription (computerized provider medication order entry)

The benefits of computerized provider **medication** order entry (CPOE) are well known. The most evidence is found in medication order entry even with little or no decision support. A CPOE embedded in the electronic patient record is even more beneficial since the information from the rest of the patient record becomes available to the health professional during the prescription process (e.g. laboratory results…). Although the most benefit may be seen if the CPOE system is used in conjunction with well designed and implemented decision support.

The beneficial effects include greater use of formulary medication, elimination of ambiguities caused by illegible handwriting, use of order sets containing related orders for specific purposes, use of templates enforcing standardization of care, use of recommended dosages and improved efficiency of care delivery.

The use of CPOE, however, carries a non-negligible potential for harm and unintended consequences: entering of duplicate orders, inadverted overdosing, unfavorable workflow issues, paper persistence. Many of the latter may be overcome by implementing a well-designed CPOE and by adding a decision support system to the CPOE.

System requirements for CPOE in medication ordering

- The drugs prescribed in the CPOE are available in a central hospital-wide medication database managed by the pharmacy department.
- The pharmacy can define a subset of this database that represents the formulary. The system directs the prescriber to the use of formulary medications.
- The system supports generic medication orders and medication orders by drug trade name.
- Medication orders are entered in a structured format (e.g. drug name, dose, dosage form, start/end time for order, unit, frequency, administration route, clinical indications for an 'as necessary' order…). Each medication order is built up with all necessary components in order to ensure compliance with the Belgian legislation concerning medication prescriptions.
- All actions on medication orders (start, stop, change, cancel) are logged in the system and a complete audit trail can be performed for each individual medication order.

- The system supports a workflow where the pharmacist is able to validate a medication prescription. This validation, however, may not impede of execution of the medication order. However, this validation process may be mandatory for some medication orders.
- The system supports a workflow where the pharmacist is able to substitute a drug for an alternative (formulary) drug
- Only licensed health care professionals are authorized to enter medication orders. The rights for entering medications orders are configurable.
- The system supports a workflow for oral orders. This workflow allows the administration of a drug to a patient with mandatory retro-active approval by a licensed health care professional.
- The prescriber has during the prescription process access to relevant information (e.g. clinical information, lab-results, other..).
- The user has during the prescription process access to relevant drug information (e.g. drug references)
- The system is able to deliver a complete overview of all current medication orders. The system also can show an overview of the medication orders of a certain time frame. These medication order overviews are available to all relevant users, including the pharmacist. This way the system supports the role of the clinical pharmacy in the prescription and drug workflow in hospitals.

Measure

- Numerator: Number of hospital beds for which all medication is prescribed electronically.
- Denominator: Total number of hospital beds

5. Drug-drug interaction

The users legally authorized to judge drug-drug interactions and contraindications are prompted as soon as possible by the system in the process of the drug distribution process. (e.g. for a physician this means before completing the e-prescription. For the pharmacist before preparing or delivering the medication).

Those alerts can be customized to specific medical specialties. Moreover the user must have the possibility to overrule these warnings specifying the reason for overruling.

Step 1 Interaction checking includes:

- Therapeutic duplication “deduplication”: Medication with therapeutic overlap with another new or active order; may be same drug, within drug class, or involve components of combination products
- Min-max dose ranges : Medication with a specified dose that exceeds recommended dose ranges or that will result in a cumulative dose that exceeds recommended ranges

For later steps this needs to be expanded to more complex interaction checking with non-medicational data (e.g. allergies, pregnancy, diagnoses, lab-results,...)

Local drug databases / formularies should be SNOMED CT-annotated in order to be compliant between institutions and professionals. The use of subsets of the national reference drug databases will guarantee interoperability. To guarantee uniformity in the implementation (and thus uniformity of care for the patients) national databases for each of the types of interactions should be made available.

Although the task force added this to the Step 1 criteria, the timing for reaching this goal is relative to the availability of the databases driving this functionality. We propose at least two years (one year for technical development and one year for implementation) between the final delivery of the data base and the requirement to implement the corresponding interaction (assuming that the design and specification of the database is supplied beforehand). This means not only the availability of the SAM (Structured Authentic Medication) database (or an alternative) and interactions defined using the keys used in this database.

The criterium is met if the hospital has implemented the check in its medication prescription system and uses the interaction database as supplied by the government.

6. Medication administration (linked to e-prescription)

The electronic medication administration record (eMAR) supports the medication management in the electronic medical record. Although less literature on eMAR has been published, the use of eMAR has the potential to decrease the incidence of medication errors. The benefits are evident for eMAR systems alone and in combination with CPOE. The use of eMAR in conjunction with barcode scanning technology may even further increase patient safety.

Minimal system requirements

- The system requires personal login before any medication administration can be documented
- The system logs the medication administration process. A complete audit trail of any medication administration is possible.
- The eMAR provides an overview of all medication administrations in a timeline. This includes all past and future medication administrations as well as the medication orders that are not executed (delays/omissions).
- The system favors immediate documentation of order fulfillment i.e. drug administration (opposite to retrospective documentation)

- The user has the possibility to document any information (preferably structured) during the execution (or the non-execution) of a medication order.
- Any medication administration after an oral order generates a request for retroactive approval addressed to the ordering physician.
- The system displays always the name of the drug as depicted in the medication order. In case of medication substitution by the pharmacist, both drug names are displayed/accessible in order to avoid misunderstanding.
- The user has during the medication administration process access to relevant drug information (e.g. drug references)

Measure

- Numerator: Number of hospital beds for which electronic medication administration is implemented.
- Denominator**:** Total number of hospital beds

7. Care Planning/Nursing module

During the stay of the patiënt the nursing module is one of the core tools to support the care process. This module should facilitate the communication between care providers within the organisation where the patient is admitted. The main focus of this module should consist on sharing information about the status of the patient.
This includes:

- Registration and review of history;
- Possibility to access and read (medical) problem list;
- Assessment and registration of nursing problems and risks;
- Support for assessment tools and scales (e.g. ADL, malnutrition, decubitus,…)
- Support for registration of nursing diagnoses and interventions;
  an integrated task list where medication orders and nursing orders are unequivocally listed. This task list is available in single-patient and multi-patient views
- A link to the care plans. These care plans are multi-disciplinary by default and may be a part of a clinical pathway
- A tabular of graphical patientlist that gives an overview of the patients present on the ward with their status
- Possibility to enter and view vital signs;
- A link to the Medication adminstration record (eMAR);
- Support for the briefing process:
  - possibility to enter notes;
  - possibility to create an overview of several data to support efficient briefing & communication (e.g. SBAR: Situation Background Assessment Recomendation
- Support for VG-MZG registration.

Measure

- ·Numerator: Number of hospital beds for which the care planning/ nursing module is implemented.
- ·Denominator: Total number of hospital beds

8. Order-entry (RX/lab/consultation)

Orders should be either entered by the requesting physician or at least be validated by the requesting physician before execution.

Electronically validated orders should be considered as equivalent to signed orders on paper. The task force also proposes legislation to allow for standing orders for any type of order entry. A possibility would be to have standing orders linked to care plans and to be agreed upon by the medical staff. If a patient is registered as receiving a care plan, nurses should be able to execute standing order linked to the care plan with validation by the physician afterwards. Such system would not only reflect current practice but also enhance compliance with best practice guidelines and greatly facilitate physician adoption of electronic order entry. Adaptation of legislation is needed to allow this.

Orders for (medical) procedures:

Manage orders for diagnostic and treatment procedures.Functionalities: enter orders, trace, discontinue, and renew orders.

Procedures performed are linked into the EPR.

Each order will be completed with the necessary and appropriate patient information (such as instructions and patient clinical information preferably derived from the EPR or patient summary in an automatic way) necessary to perform the procedure.

Orders for lab results:

Manage orders (immune) chemistry, microbiology, hematology, RIA… (Functionality: entry, tracing, discontinue, and renew). Each order includes appropriate and supporting detailed documentation (such as instructions and patient clinical information preferably derived from the patient summary) necessary to perform and communicated to the service provider for completion of the diagnostic test(s).

Orders for RX

Manage orders standard radiology, CT-scan, MR-scan, angiography, ... (Functionality: entry, tracing, discontinue, and renew). Each order includes appropriate and supporting detailed documentation (such as instructions and patient clinical information preferably derived from the

patient summary) necessary to perform and communicated to the service provider for completion of the diagnostic test(s).

Order sets

The full added value of electronic ordering and the adoption by clinicians will only be reached by using order sets (predefined groups of orders that should be executed in a linear or conditional way) based on criteria like :

- pathology
- patient condition
- surgical procedure planning
- evidence based medicine
- cost optimisation

Although the use of order sets is not included in the criteria of Phase 1, the EPR solution should contain this functionality. As order sets are an important means to implement best practices and evidence based medicine, the task force proposes that legal action is taken to allow the use of such order sets.

In Step 4 order sets should be combined with e-Prescription (criteria 4), Care Planning (criteria 7) and Orders (Criteria 8).

Measure

- Numerator: Number of electronically entered orders. These could be measured by adapting the current time stamping protocol to allow for typed timestamping. Counting typed timestamps would allow a semi-automated follow up of this criterium.
- Denominator: Number of executed procedures in the domain (radiology, lab, consultations)...) could be estimated based on the number of procedures billed.

9. Appointment scheduling

Single appointments:

Patient appointments are scheduled electronically in a scheduling system which is integrated in OR linked to the EHR/HIS. The patientdata should be retrieved from the HIS in order to assure correct patient identification.

Important remark:

The system has to support a way to identify out-patients who have never been registered in the HIS (first contact). These “temporary” patients can be created manualy in the apointment scheduling system but should be identified correctly when registered at the hospital. The system should support a reconciliation mechanism in order to link the “temporary” patientdata with the real patientdata.

Multiple appointments:

This criterium is met if the EHR allows the booking of combined appointments. These combined appointments can consist of several appointments for different healthcare providers/disciplines.

E.g. an appointment can be booked for a patient who has diabetes. When booking a certain type of appointment (c.q. follow up diabetes), an appointment is booked with a nurse (who handles the intake and first review of the patients status) and an appointment is booked with an endocrinolgoist.

Measure

- numerator: number of outpatients for which an appointment is electronically scheduled
- denominator: total number of outpatients

10. Discharge letter

Prepared at discharge, documented in the patient’s record and contains at least the items required by the Royal Decree of 3 May 1999 Art. 3 §3

The history of each letter is easily available (date/time of creation, validation, including an overview to whom it has been sent and by which means).

The validated discharge letter is electronically available.

In Step 4 the electronic discharge letter should contain structured data.

Measure

- Numerator: number of electronically available discharge letters
- Denominator: number of discharged patients (patients with specific pathology that need recurring treatment excluded)

11. Vital signs

Capture the basic vital signs in a structured way. These may include:

- Temperature
- Blood pressure
- Pulse rate
- Respiratory rate
- Height (* no daily measurement necessary)
- Weight (* no daily measurement necessary)
- BMI (Body mass index, calculated from Height and Weight)
- Pain
- ...

It must be possible to register these vital signs. The frequency of registering these vital signs should be adapted to the patients pathology.. Manual registration or automatic registration through device coupling is possible. In the case of automatic registration, it should be possible to validate the data, to eliminate false registrations. The data should be registered in a structured way to make calculations, graphs, analysis, … possible.

Measure

Numerator: The number of hospital beds for which there is at least one electronic vital sign registration during the patient's stay in the hospital according to the policy in the hospital

- Numerator: The number of hospital beds for which there is at least one electronic vital sign registration during the patient's stay in the hospital according to the policy in the hospital
- Denominator: total number of hospital beds for which the policy is applicable.

12. Informed consent registration

The EPR supports the registration of a list of procedures and treatments for which consent must be obtained, including who must obtain consent and how it has to be obtained (verbally, by signing a consent form or through any other means).

Patients participate in the care process by making decisions about proposed care and treatment and by accepting or refusing diagnostic procedures and treatments. After a patient has been well informed, he is in the position to grant informed consent. Informed consent may be obtained and

registered at several points in the care process e.g.: general consent for treatment for an inpatient, surgery, anesthesia, use of blood and blood products, dialysis, chemotherapy, procedural sedation, abortion, other high risk treatments and procedures, … The EPR supports the registration of the informed consent (or its refusal).

Specific for the Belgian situation, the EPR supports the registration of the patient consent that authorizes the collection, use and disclosure of health information for providers giving birth to the therapeutic relationship (patient – provider) in the context of the eHealth platform (see also the Health- MetaHub, Hub project).

Measure

- Numerator: number of electronically registered obtained consents
- Denominator: number of treatments that require an informed, according to the policy of the hospital.

13. Therapy limitation code or advance directives

The patient's autonomy is respected. The patient has the right to refuse or choose his treatment. Patient guidelines (advance directives) and provider therapy limiting instructions or DNR (Do Not Resuscitate) orders are registered with necessary corresponding data such as date and time, HC actor who registered this directive and possibly references to paper written documents.

Measure

- Numerator: Number of registered therapy limitation codes
- Denominator: Number of therapy limitations codes that should be registered, according to the policy in the hospital

14. Medische resultatenserver/Elements objectifs du dossier

The results of the physical examinations (vital signs), imaging, functional tests (e.g. fluid balance), laboratory tests, evaluation scales, diagnostics and treatment reports, discharge letters … should be presented and be customizable in the most appropriate method for the consulting user.

This should be independent of the type of contact and available in a longitudinal way.

Evaluation criteria (for YES):

Step 1 - 3:

- Discharge letter (for inpatient)
- Consultation letter (ambulatory)

- Surgery report (for all surgery patients)
- Anesthesia report
- Diagnostic and functional reports
- Lab results CDA
- Radiology images

Step 4:

- Other images

15. Automated communication with HUB's and interaction with eHealth

The following eHealth-services must used by hospitals:

- eHealthBox
- consultation of health records (other institutions, SUMEHR, medication scheme) through hubs by healthcare providers in the institution
- sharing of the electronic health records of patients to other hcp
- use of healthdata.be for participation in registries
- status of the informed consent in the patient administration software at registration desks of hospital and of consultation departments (if patient does not need to perform central registration); this status must be retrieved on-line from either a hub or the national database
- integration of services of NIHII, NIC/CIN, National Register in processes of the institution (Chapter IV, Insurability, eBirth, Mediprima, …)

Measure

- Numerator: The number of unique patients in the denominator that have the listed registered items/ information available on the eHealthservices in the EHR reporting period of the denominator.
- Denominator: the number of unique patients in inpatient, one day care or emergency setting in a given EHR reporting period (to be defined).

- Important remark: The target date to reach this goal is relative to the availability of the release of the technical description of a new item or register. We take into account one year for development and getting into production.

- A task force will decide on how to proceed further for the measurement of each item.

LIST OF ABBREVIATIONS

CDA: Clinical Data Architecture

CDSS: Clinical Decision Support System

CMS: Centers for Medicare & Medicaid Services

CPOE: Computerized Physician Order Entry

EC: Emergency Care

EHR: Electronic Health Record

= EGD: Elektronisch Gezondheidsdossier

= DSE: Dossier Santé Electronique

EMR: Electronic Medical Record

= EMD: Elektronisch Medisch Dossier

= DMI: Dossier Medical Informatisé

EPR: Electronic Patient Record

= EPD: Elektronisch Patiënten Dossier

= DPI: Dossier Patient Informatisé

eMAR: Electronic Medication Administration Record

EMRAM: Electronic Medical Record Adoption Model

HIMSS: Healthcare Information and Management Systems Society

HIS: Healthcare Information System

OR: Operation Room

PDMS: Patient Data Management System

SAM: Authentic Source of Medicines

WHO : World Health Organisation