Electronic medical records

- Purposes
- Structures
- Related nomenclatures
- Implementations
- References
Purposes

- Collecting relevant data
- Reporting
- Management of medical data
- Administrative management
- Attestation and defending the patient
- Correspondence
Purposes

• EMR is a communication tool
• Between health workers
• Between GP's and hospitals
• Towards the patient
Purposes

- This means WORK!
- Who will do it?
- General Practitioner best placed (Patient-centric medicine!)
- Patient rights? … Full access
- EXCEPT for “personal notes” of the physician
- Patients' own data input??
- Health Vault, Google Health??
Structures

1. Journal (log-book)

1. SOAP registration

1. Segmented record
   1. Pre-conditions/context of the patient
   2. Mode of life/ habits
   3. Pregnancy record
   4. POMR (Problem Oriented Medical Registration)
   5. Problem list
   6. Diabetes record

1. Episode registration
Structures

1 patient + 1 physician + 1 contact: case:

<table>
<thead>
<tr>
<th>STOMACH PAIN</th>
<th>REPEAT PRESCRIPTION HT</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epigastric location</td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Exacerbation</td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>BP 146 / 82.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HR 76 / min, reg.</td>
<td></td>
<td>P</td>
</tr>
<tr>
<td>(EXCLUDE) ULCER</td>
<td>(TREAT) Hypertension</td>
<td></td>
</tr>
<tr>
<td>Fibroscopie</td>
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<td></td>
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<tr>
<td>ANTACID</td>
<td></td>
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<tr>
<td>Dietetic advice</td>
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<td></td>
</tr>
<tr>
<td>Beta-blokker 1 / d</td>
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</tbody>
</table>
Structures

- 1 patient + 1 physician + 1 contact: case:
  - **S** Subjective element: patient's complaint
  - **O** Objective measurement
  - **A** Action taken
  - **P** Planning: what next? Care plan? Clinical path?
Structures

- Problem Oriented Medical Registration (POMR)
  - **Patient** (central element)
  - Health agent
  - Health care element
  - Health approach
  - Service(s)
  - Contact/sub-contact
Structures

- Problem Oriented Medical Registration (POMR)
Structures

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- Problem Oriented Medical Registration (POMR)

<table>
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<tr>
<td>Subcontact 1.1</td>
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<td>Subcontact 1.2</td>
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Structures

• Problem Oriented Medical Registration (POMR)
Structures

- Problem Oriented Medical Registration (POMR)
Structures

**Health Care Element:**

- Can be defined by any item in the patient record describing the patient’s state of health and for which something is (has been) done by a health professional.

- A Health Care Element is addressed by at least one service

- A Health Care Element is related to one defined patient and to one specific problem (item).

- Most of the time, this problem (item) can be identified by a diagnosis, by a patient’s complaint, a risk factor, a life condition, ...
Structures

**Health Care Element : attributes**

- 1 patient + 1 “problem”
  - Label(s)
  - date start
  - date end
  - index gravity, certificate, ...
  - active / inactive
  - etc.
Structures

• Health Approach

  • Comprises all that has been done
    • by 1 health agent
    • with a specific objective
    • within one health care element

Enables to differentiate the actions taken by different members of a health team:
  • Physician (approach = “follow-up”)
  • Surgeon (approach = “surgery”)
  • Physiotherapist (approach = “re-education”)
  • Nurse (approach = “pain control”)

All in the context of a single health care element: “broken leg”
Structures

Contact

• Any interaction between a professional and a patient
  • with or without encounter
  • includes at least 1 service
  • related to a single health agent
Structures

Subcontact

• Part of a contact dedicated to a single health approach
  • including all services related to a health approach
  • could be SOAP structured
Structures

Service

- Recording (data entry) into the EPR of information related to any activity or process performed by the health professionals.
- Any data in the EPR is introduced through service. A service is related (directly or indirectly) to only one Health Agent.
- A service may be related to several sub-contacts (of the same contact), and thus to several Health Approaches (of a same Health Agent)
- and to several Health Care Elements (of a same patient).
Structures

- Problem Oriented Medical Registration (POMR)
# Structures: POMR

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Structures: POMR

- Routine: journal + link to health element(s)

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Structures: POMR

- Plan service(s)

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<tr>
<td></td>
<td>Subcontact</td>
<td></td>
</tr>
<tr>
<td>2/2/02</td>
<td>Contact</td>
<td>2/5/02</td>
</tr>
<tr>
<td>a repeat prescripton</td>
<td>Service</td>
<td>Repeat prescription BP 20/11</td>
</tr>
<tr>
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## Structures: POMR

- Adjust planning

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<tbody>
<tr>
<td>Check bloodpressure and prescribe</td>
<td>Health Approach</td>
<td>Change medication to improve BP</td>
</tr>
<tr>
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<td>Subcontact</td>
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Structures: Problems versus HCE

• **Problem** =
  • an issue specifically flagged as a problem
  • active or inactive
  • difference “inactive” “previous problem”

• **Health care element** =
  • An issue for which the health care provider did/
  • does something
  • What he does: is a *service*
Structures: Episode recording

• What is an “health care episode”?
  • Simple cases: pregnancy, flue
  • Chronic cases: beginning? End: death of the patient
  • Difficult: end unknown: patient feels OK
  • Un-noticed episodes: contaminations ...
Structures: Episode recording

• What is a **period**?

Examples:

• Phase: acute phase / remission
• Groupings of episodes of care for a specific problem linked to a specific health element and (1-n) approaches
• Event: hospitalization
Structures: Episode recording

Episode: time view of 1 health element + related services

- corticothérapie
- dépression
- asthme
- diabète
- menopause
- obesity
- fracture hip

Problem list at consultation le 11.10.95


Reason for encounter
Structures: Episode recording
Structures: View

Presentation of data and different characteristics visualizing a care concept such as:

- Antecedents
- Problem list
- Episode list
- Laboratory data
- Hospital results
Active record management

An electronic health record **MUST BE MANAGED**

- Medication interactions
- Therapy faithfullness of the patient
- Planning and active follow-up
- Risk assessment and behavior follow-up
- Overviews and summaries (SUMEHR)
- Audits
- Integration from external sources
Active record management

An electronic health record **MUST BE MANAGED**

- Some useful register selections:
  - Integration of vaccinations
  - Generating listings: which patients need urgent attention?
  - Age and gender register
  - Smears register
  - Call-back register
  - Diabetes Mellitus register
Active record management

An electronic health record **MUST BE MANAGED**

- Useful (sometimes obliged) reporting:
  - Quality reporting (regional groups)
  - Registration of urgent cases
  - Reporting of infectious diseases
  - Participation in vaccination actions
  - Surveillance
Active record management

An electronic health record MUST BE MANAGED

• Moving /death of patients
• Family / living together links
• Lab and other reports
• archiving
• messages/letter exchange
• Problem list management (active/de-active)
• Quality audit
Active record management

Exporting of SUMMARY RECORD (SUMEHR)

- Standard function in EHR
- Dataset “standard”
- Format: XML
- Non-addressed message?
- WHO generates this message?
- Belgium: “GP with specific function”