An International Minimal Patient Care report Exemplified in FHIR to Facilitate Standardisation and Interoperability of Emergency Medical Services Data

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The problem in healthcare IT

- Data silos
  - Differing standards
  - Differing vendors
  - Systems accumulated over time

- Clinicians requires overview of patients

- Cross sectional care is paramount
Danish Patient Care Report Case
Interoperability

Structural/syntactic
- Structure of data guaranteed
- Meaning/interpretation not guaranteed

Semantic
- **Meaning** of data is guaranteed
- Machines can process it
  - Enables clinical decision support
Achieving semantic interoperability

1. Same data
2. Data exchange standard
3. Terminology binding (Massive area, out of scope)
Common data collection (IMPCR)

• Why?
  • Standardise data collecting intra and inter country
  • Enable research and cross country/county care

• How
  • Danish and American data set
  • Literature when no consensus
Why FHIR?

• A tool for interoperability
  • Structured data exchange
  • Can use terminology
  • Context

• Resources = LEGO blocks
  • Consistent across different implementations

• Vendor adoption
What was done

<table>
<thead>
<tr>
<th>STORY</th>
<th>IMPCR CATEGORY</th>
<th>FHIR RESOURCE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>...Kathrine Smith, a 24-year old woman The EMS personnel notes that she has no known allergies and is an otherwise healthy young woman..fallen off her horse...horse was in mid jump..</td>
<td>Patient + Additional patient information</td>
<td>Patient, Allergy/Intolerance, Observation</td>
</tr>
<tr>
<td>..is conscious but has pain in her pelvic area, she rates it an 8 out of 10.</td>
<td>Injury</td>
<td>Observation</td>
</tr>
<tr>
<td>...put in a hard collar and taped to the hard spine board to ensure spinal stability...</td>
<td>Vital signs + Diagnose/symptoms</td>
<td>Observation.Vitalsigns</td>
</tr>
<tr>
<td>Once in the ambulance her vitals are measured Temp: 36.2C, HR: 90/min, RR: 22/min, BP: 110/ 65 mmHg, SpO2: 98%OA and GCS 15</td>
<td>Vital signs</td>
<td>Observation.Vitalsigns</td>
</tr>
<tr>
<td>She is given a 50 mcg bolus of Fentanyl for the pain along with an additional 75 mcg via IV during the ambulance ride</td>
<td>Medication</td>
<td>MedicationAdministration</td>
</tr>
<tr>
<td>The iliac crest feels tender when palpated. The EMS personnel suspects a pelvic fracture...</td>
<td>Diagnose/symptoms</td>
<td>Condition</td>
</tr>
<tr>
<td>..Performs a triage..</td>
<td>Triage</td>
<td>Questionnaire</td>
</tr>
</tbody>
</table>
...Kathrine Smith, a 24-year old woman
The EMS personnel notes that she has no known allergies and is an otherwise healthy young woman
Should be considered

• Granularity of the data set
  • (research vs clinical application)

• Flexibility of FHIR
Thank you

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