

openEHR: Introduction

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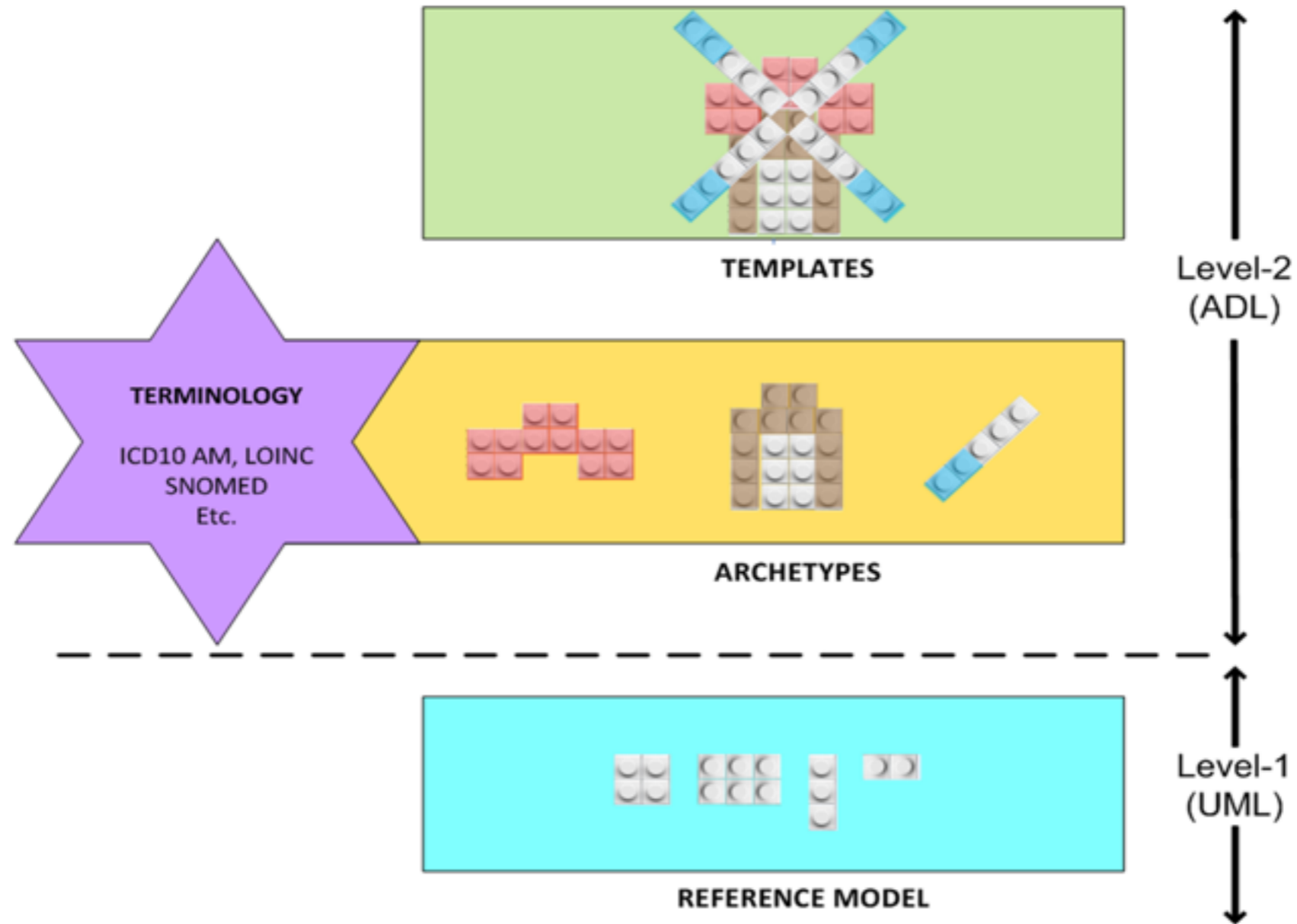


What is openEHR?

- An open specification for a health information model
- capable of supporting an open platform ecosystem
 - vendor neutral
 - technology neutral
- licensed to allow open and closed source business models

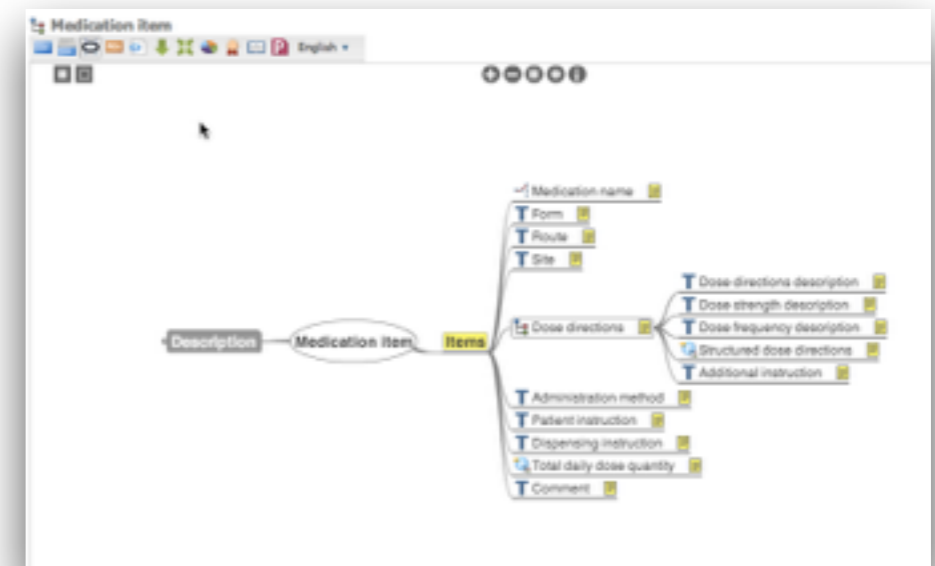
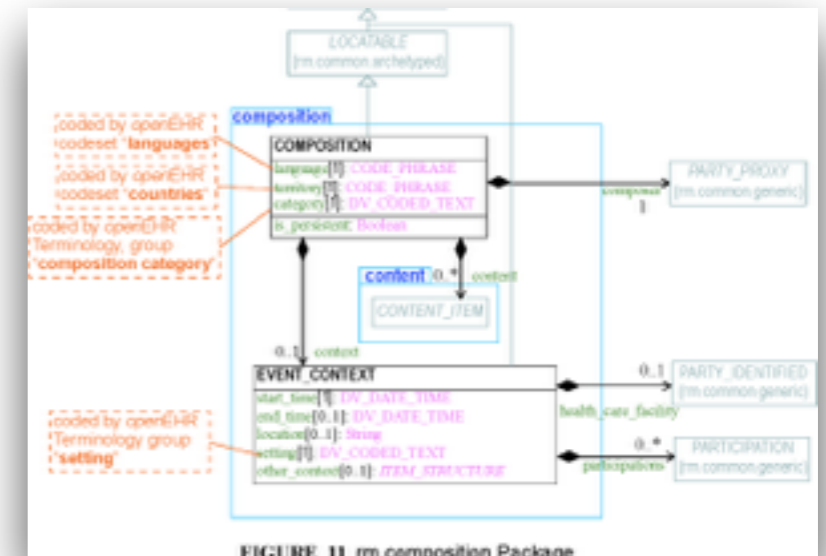


Two-level modelling



openEHR - Specifications

- Normal technical specifications with UML diagrams etc
- openEHR Reference model
 - how the health data is represented in a patient record
- openEHR Archetype object model
 - how the clinical content definitions are represented separately from the Reference model



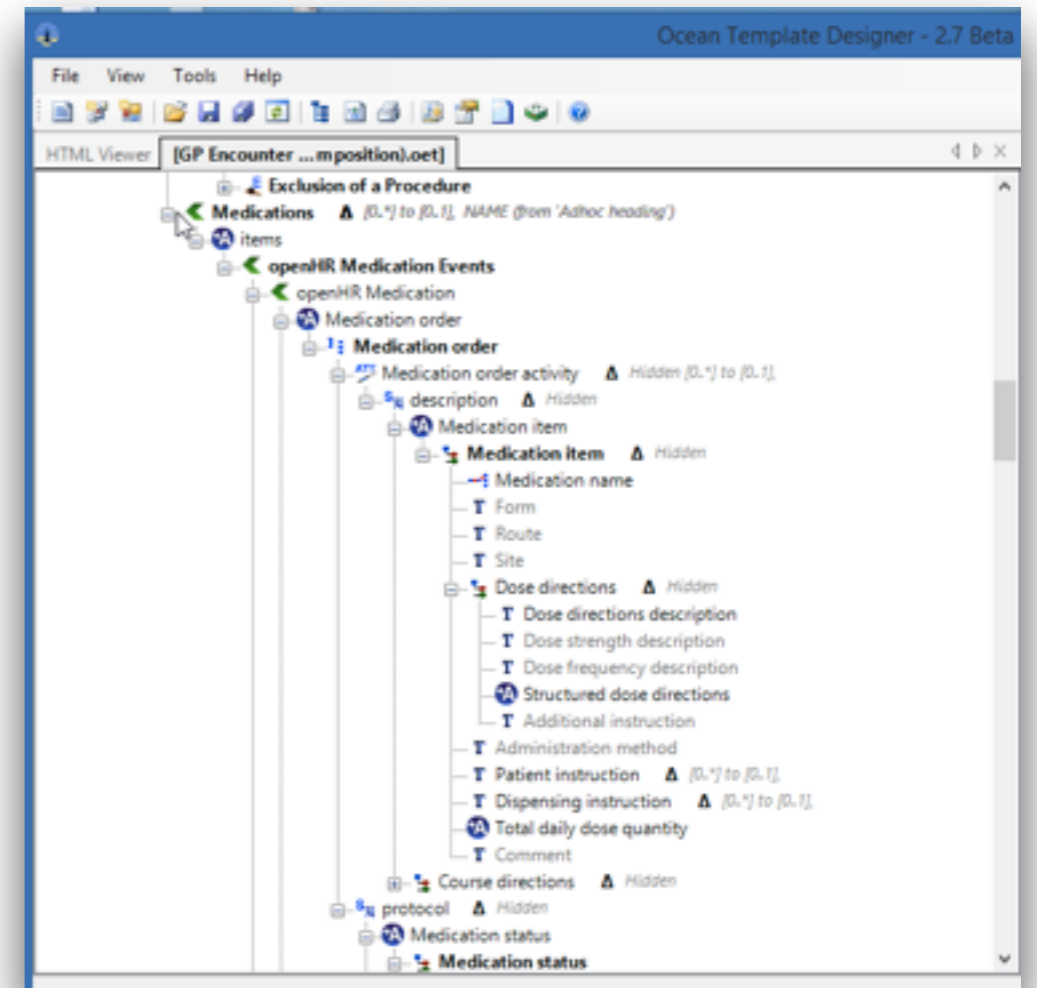
openEHR: Archetypes

- open source computable models of discrete clinical concepts
- Familiar components of a health record
 - Blood pressure, Body weight
 - Medication order, Family history
 - Capture as many clinical perspectives as possible



openEHR: Templates

- Templates deliver the datasets by aggregating archetypes together
- Key clinical endpoint and start point for generation of technical artefacts
- i.e. openEHR archetypes and templates can be **used directly**
 - Class libraries, Message schema
 - GUI skeletons, API Profiles



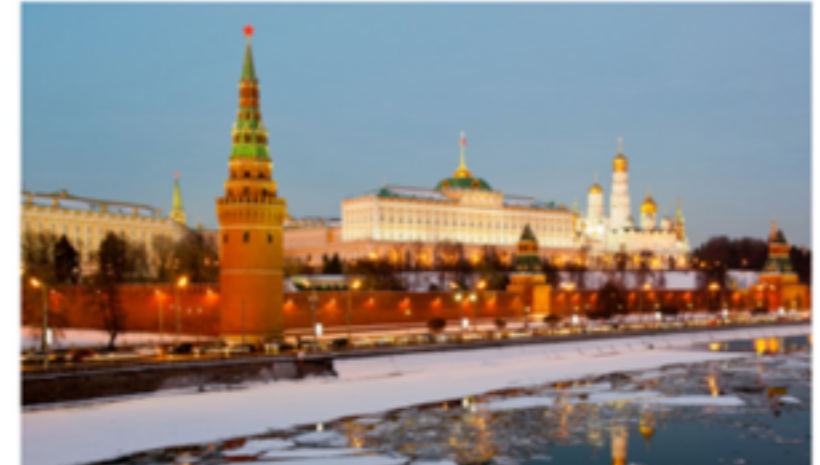
AQL: Information-model querying

- Information model querying, independent of the actual database querying
 - vendor/technology neutral querying
- To query an openEHR system you only have to know which archetypes are in use.

```
SELECT v/uid/value as composition_id,  
obs/data/origin/value as measurement_time,  
obs/data/events/data/items[at0004]/value/magnitude as systolic,  
obs/data/events/data/items[at0005]/value/magnitude as diastolic,  
c/context/setting/value as composition_setting,  
c/name/value as composition_title,  
c/context/start_time/value as composition_start_time  
FROM Ehr [uid=$current_ehr_uid]  
CONTAINS VERSION v  
CONTAINS COMPOSITION c[openEHR-EHR-COMPOSITION.encounter.v1]  
CONTAINS OBSERVATION obs[openEHR-EHR-OBSERVATION.blood_pressure.v1]  
WHERE obs/data/events/data/items[at0004]/value/magnitude > 185  
ORDER BY c/context/start_time/value
```

However

- Building an openEHR back-end (CDR) is straightforward
 - just follow the specifications
- BUT building a **high-quality** openEHR back-end is challenging
 - must understand archetypes/templates
 - must support information-model querying
 - must be fast and flexible
 - **not a trivial engineering exercise**



“For Moscow City’s EHR project, the Think!EHR Platform exceeded our expectations, proving the ability to handle 20 million EHRs with 1 billion documents while achieving sub-second response times.”

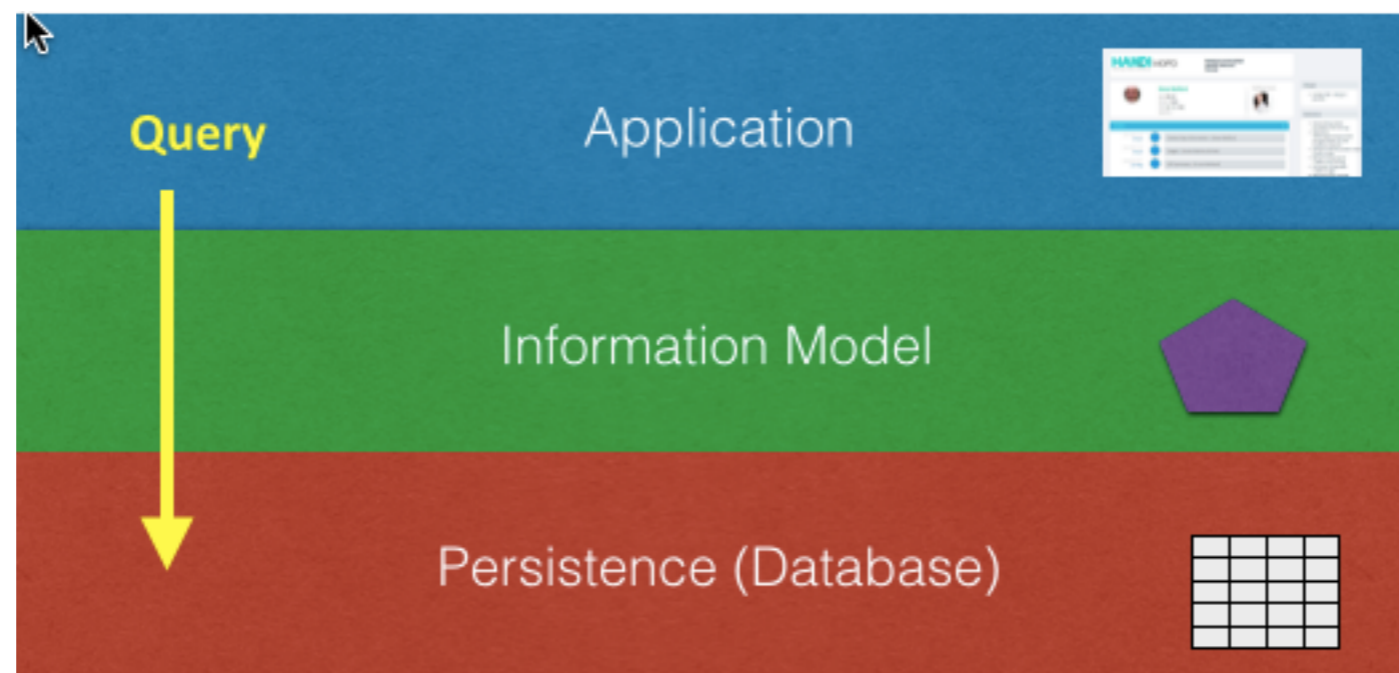
Alexey Soshnin
Head of IBS Healthcare, Russia

Current openEHR CDR market

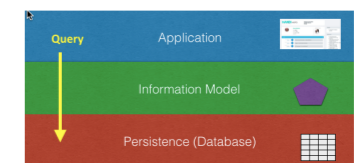
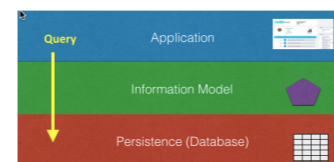
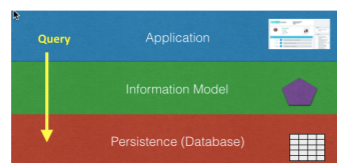
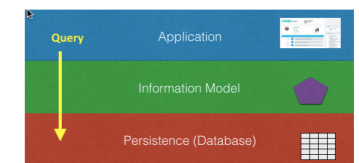
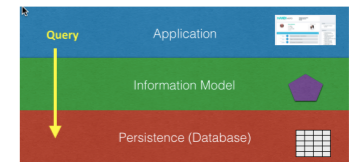
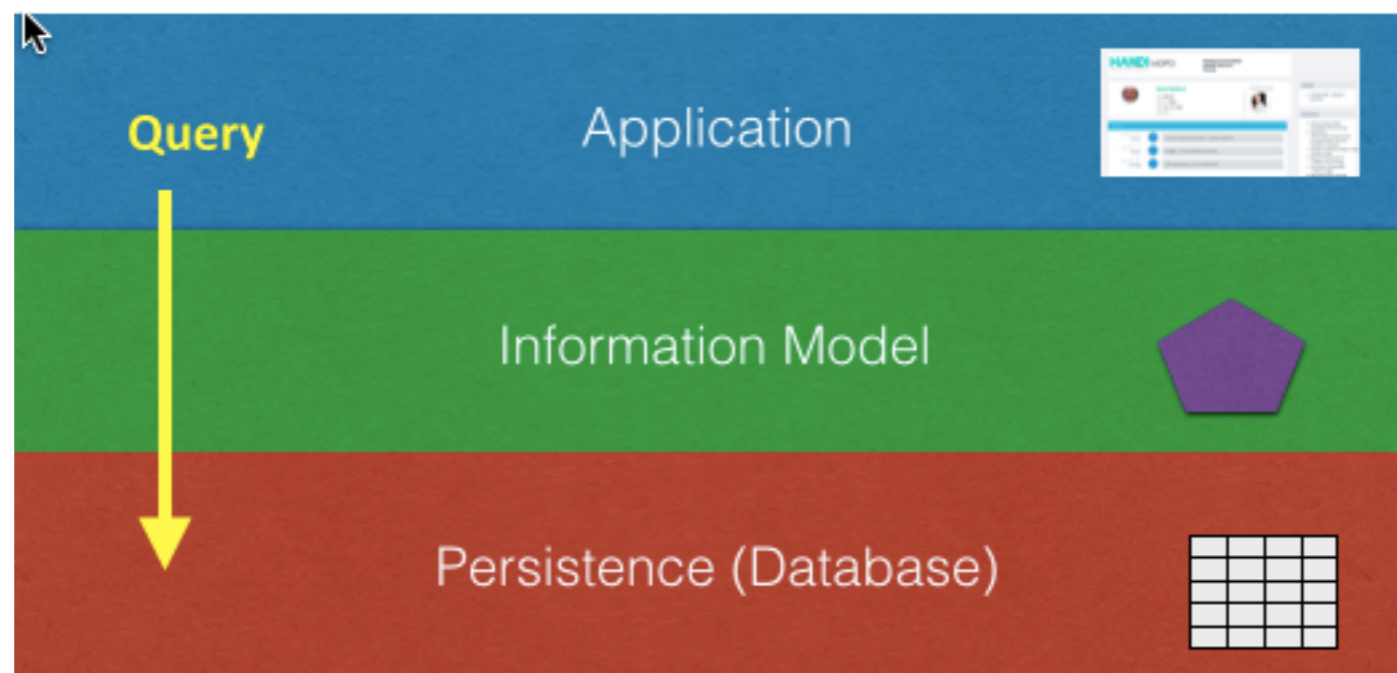
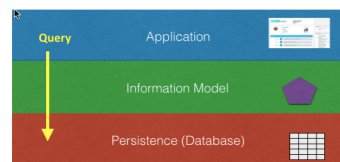
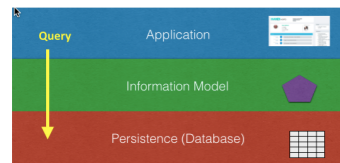
	Database	Compositions	Template validation	AQL	GDL support	open source	Separate product
Think!EHR	Oracle	Yes	Yes	Yes	Yes		Yes
OceanEHR	SQL server	Yes	Yes	Yes	Yes		Yes
DipsEHR	Oracle	Yes	Yes	Yes	Yes		?
EtherCIS	PostgreSQL	Yes	Yes	In dev	In dev	Yes	Yes
Infinni	SQL Server	Yes	Yes			?	Yes
Base24	PostgreSQL	Yes	Yes	In dev	In dev		Yes
Cabolabs	Any SQL	Yes	Yes	In dev		Yes	Yes
Nousco	?	Yes	Yes				Yes
Privantis	PostgreSQL	Yes	Yes	In dev	In dev		In dev
Medrecord360	?		No	No	No	Yes	Yes



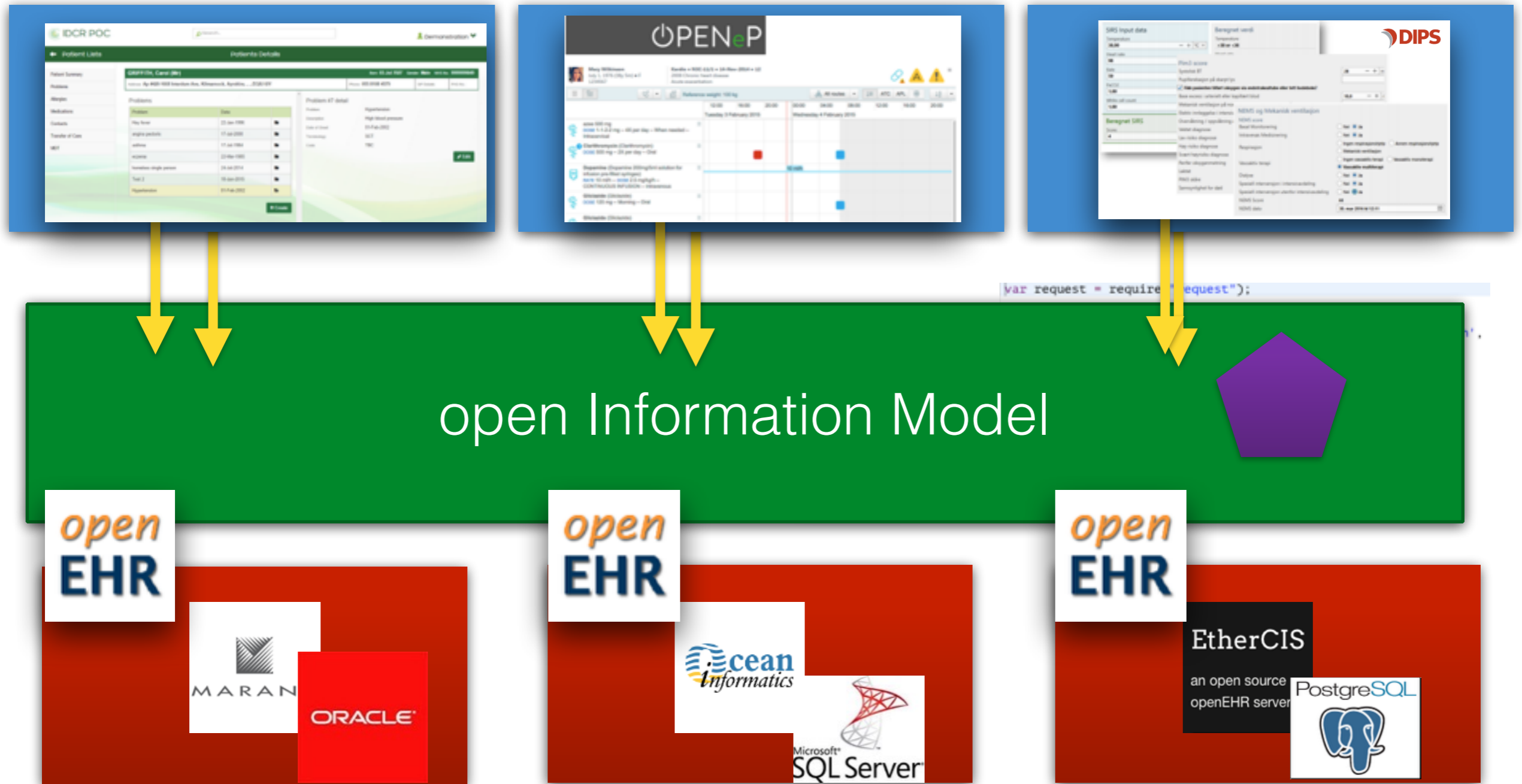
'Megasuite' architecture



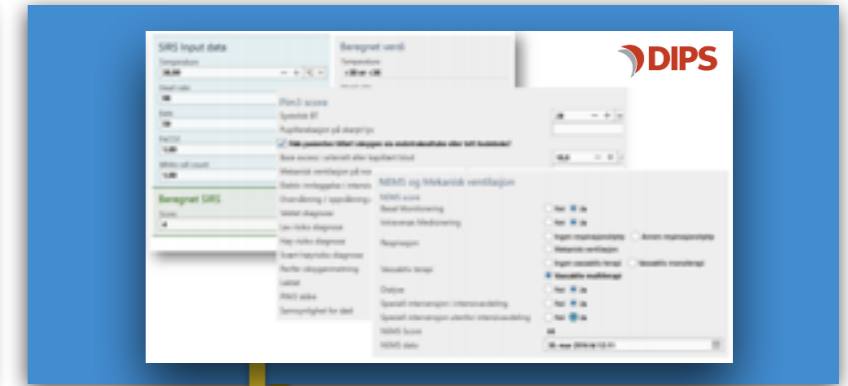
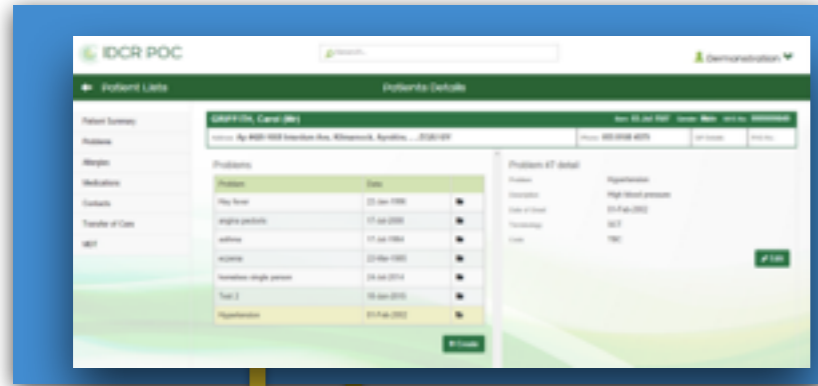
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Best of Breed 3.0: 'open platform' architecture



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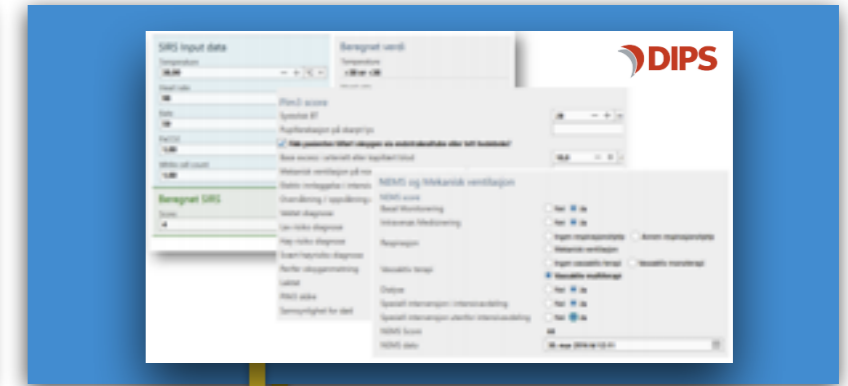
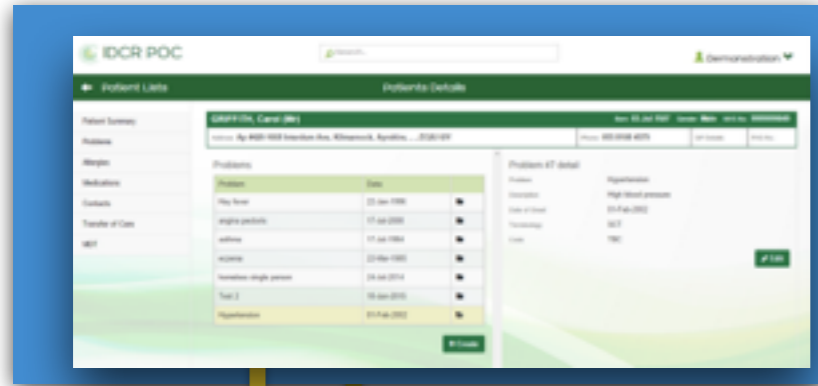
openEHR Rest API + AQL



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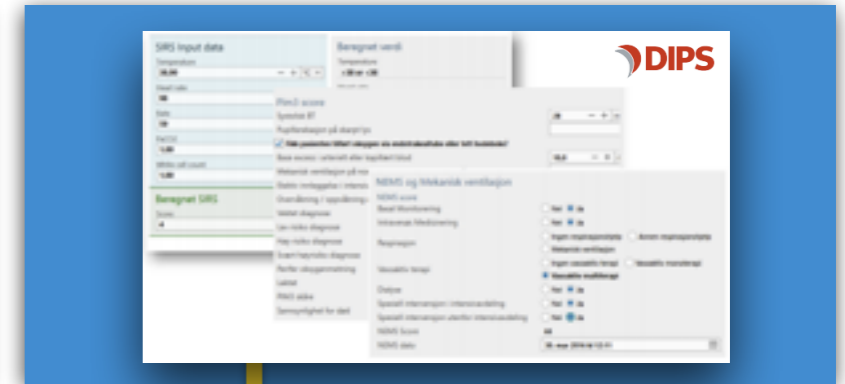
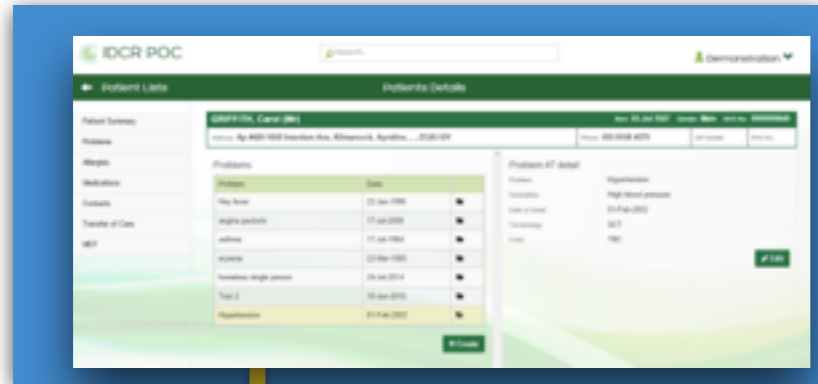
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openEHR CDR

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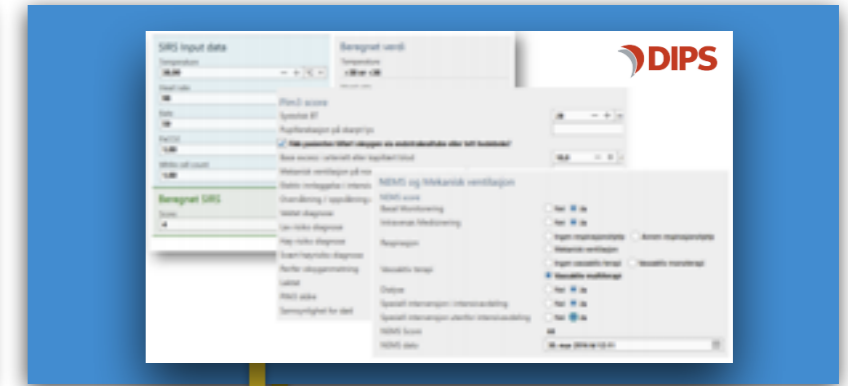
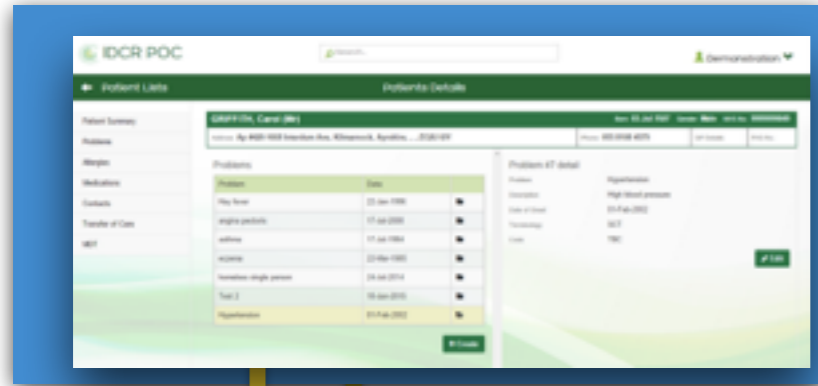
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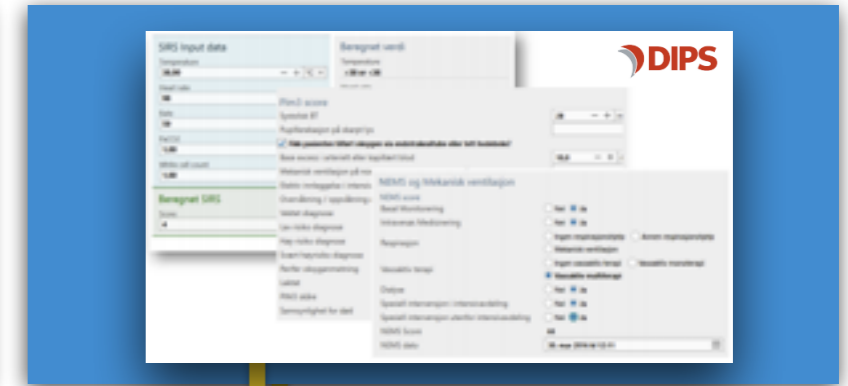
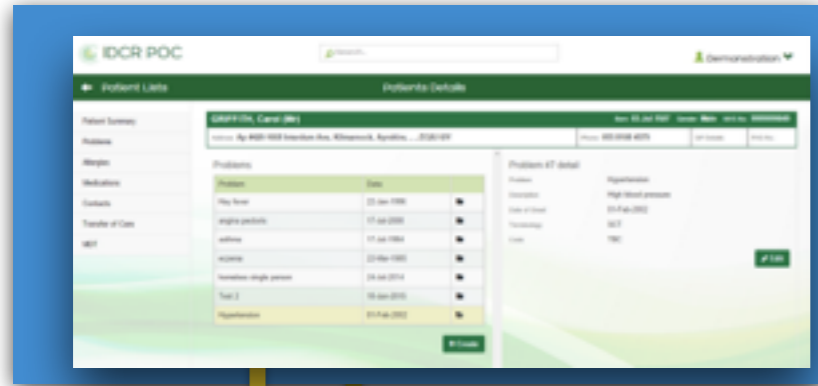
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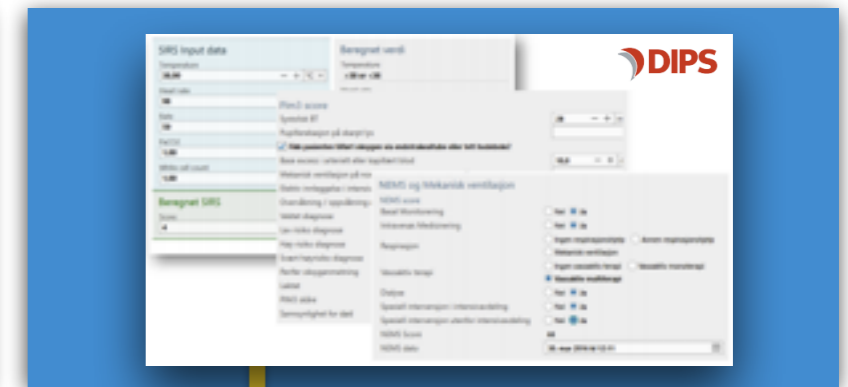
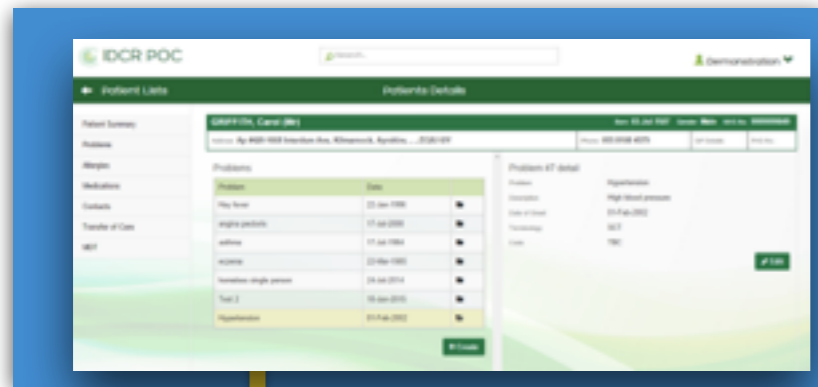
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EtherCIS
an open source
openEHR server

PostgreSQL



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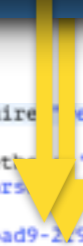
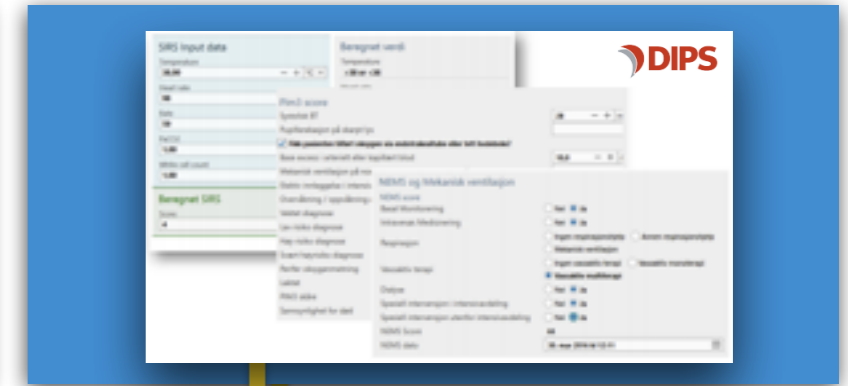
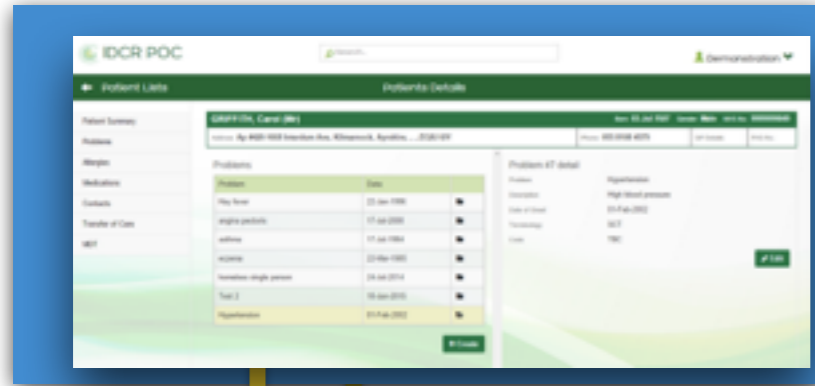
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