Smart e-Consent Management for Supporting Information Sharing within a Regional Continuum while Protecting Patient Privacy

Presentation to eHealth 2014, Vancouver, BC, Canada

3rd of June 2014

Hassan Diab Ph.D in SE
ASSSE, Sherbrooke, Qc

hdiab.chus@ssss.gouv.qc.ca

Marc Frappier Pr.
Mohammed Ouenzar Msc. in SE
Sherbrooke University
Sherbrooke, Qc

Marc.Frappier@usherbrooke.ca

Andrea Ernst-Bissinger, R.N., B.Sc.N
Product Manager QCPR for Canada

andrea.ernstbissinger@quadramed.com

Agence de la santé et des services sociaux de l'Estrie
Québec

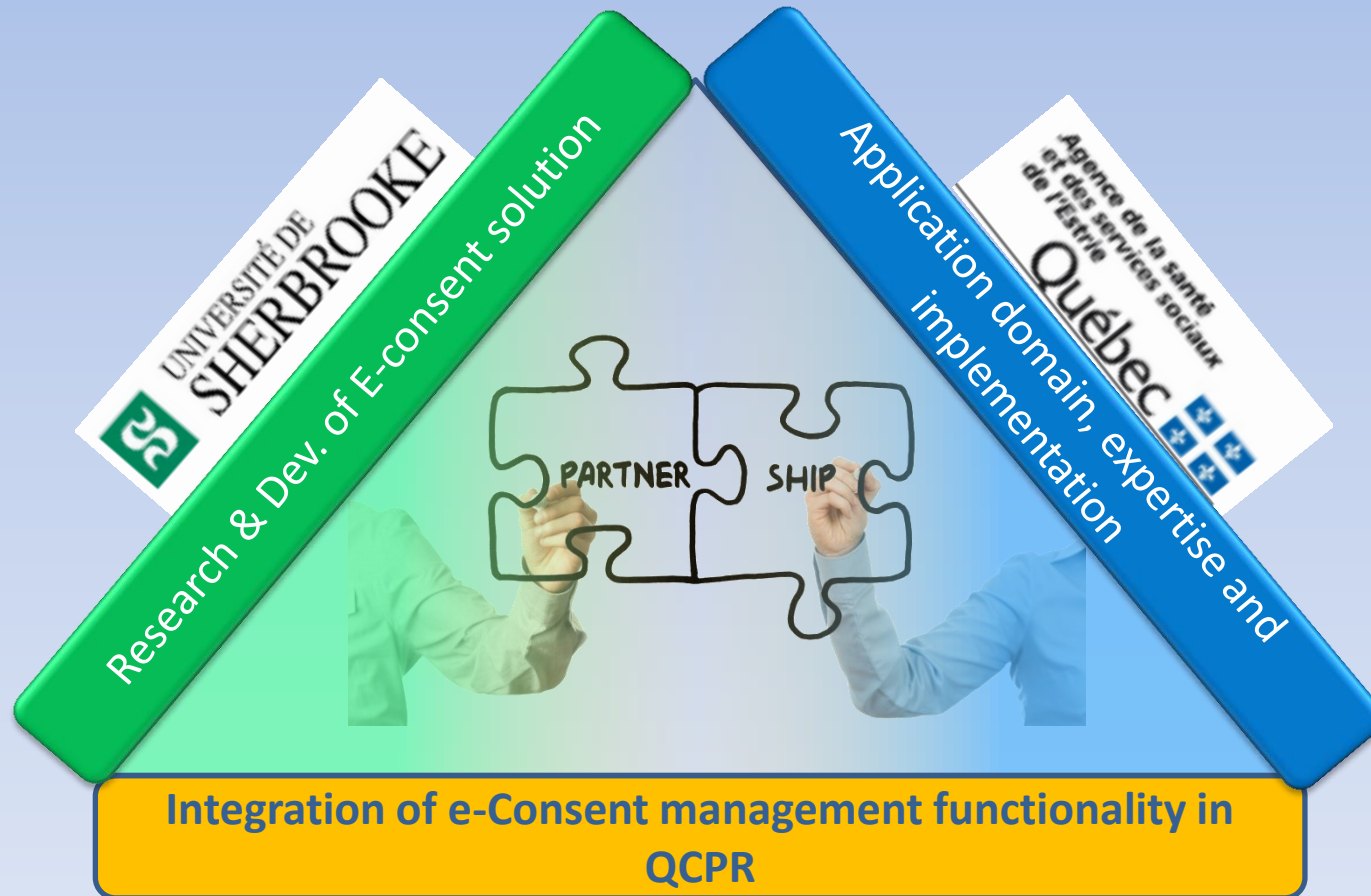UNIVERSITÉ DE SHERBROOKE

QuadraMed.

1

Participants will learn about:

- The **business** and **technical** **requirements** for sharing patient records in regional continuum of care

- The **access control models** and existing most **used approaches and technologies**

- The main **characteristics** of our **e-consent** mgmt. solution and **EHR Condo system**

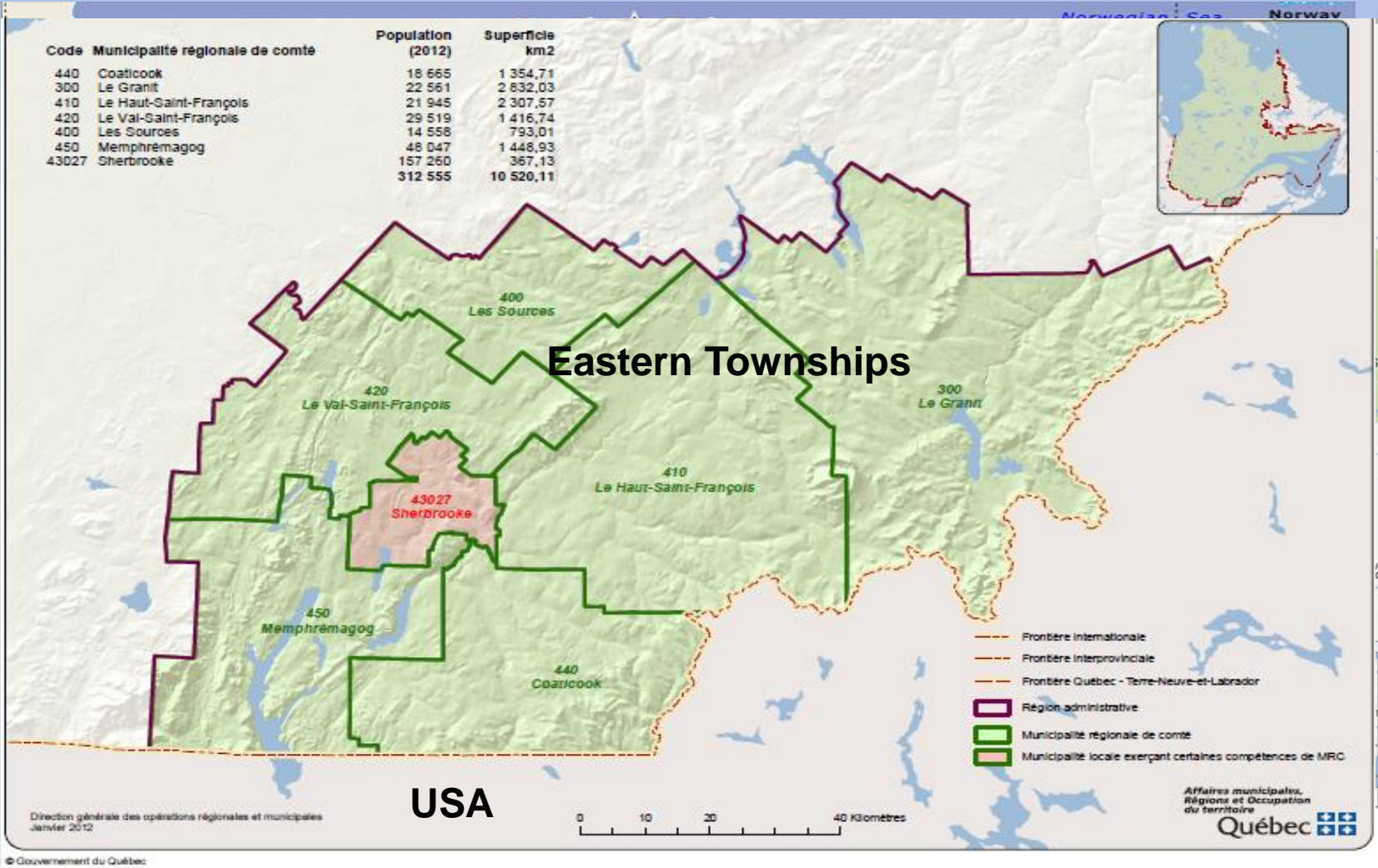- The **critical components** and the **integration considerations**

Agenda

➢ Introduction

➢ Cross facilities sharing data view project
- Goals
- Problem definition

➢ Characteristics of the e-Consent mgmt. solution

➢ Conclusion

Opportunity

Research & Dev. of E-consent solution

Application domain, expertise and implementation

Integration of e-Consent management functionality in QCPR

QuadraMed.

Introduction

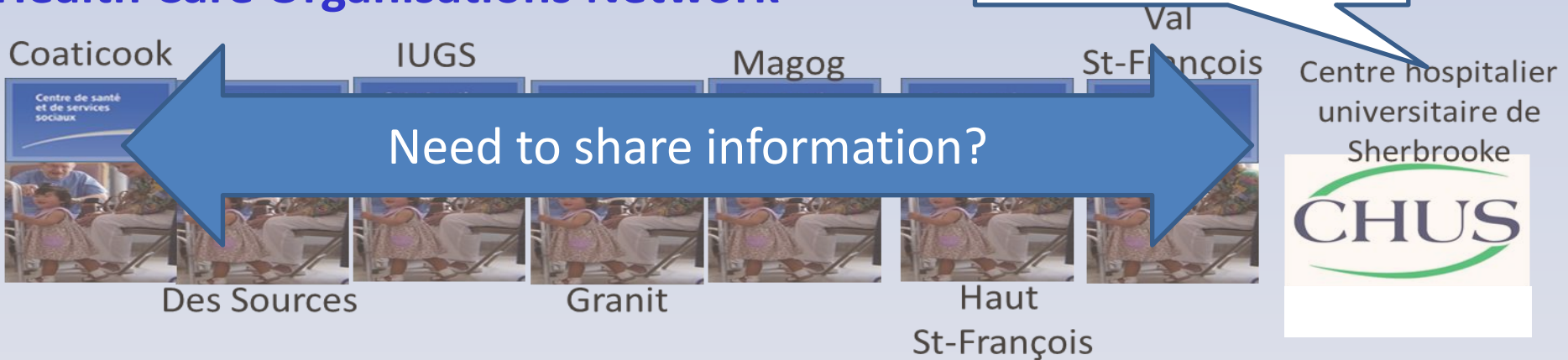# Health Care Organizations Network in Eastern-Townships Region in Quebec

Health Care Organizations Network in Eastern-Townships Region in Quebec

Patient episode of care

Two sites, 677 beds
Per year:
~28 000 surgeries
~89 000 ER visits
~31 500 admissions

Health Care Organisations Network

Coaticook

IUGS

Magog

Val St-François

Centre hospitalier universitaire de Sherbrooke

CHUS

Need to share information?

Des Sources

Granit

Haut St-François

ONE EHR Condo System for EIGHT distinct EHRs

QCPR from QuadraMed.

| Coaticook | Des Sources | IUGS | Granit | Magog | HSF | VSF | CHUS |

Regional EHR implemented throughout the Sherbrooke region

QCPR from QuadraMed:

– Deployment started in 1990 and extended to all institutions in the region

– Totally **integrated** -Laboratory, Radiology, Pharmacy, Order Management, Clinical Documentation– all integrated **in one single database**

– Supports the patient-centric vision within the regional **Continuum of Care**

– Automates documentation of care while supporting **clinical decision** and **best practices**

– **Flexible architecture** to support **Privacy Laws** -including Quebec Healthcare Services Laws
   - « Facility-Specific Patient Model »

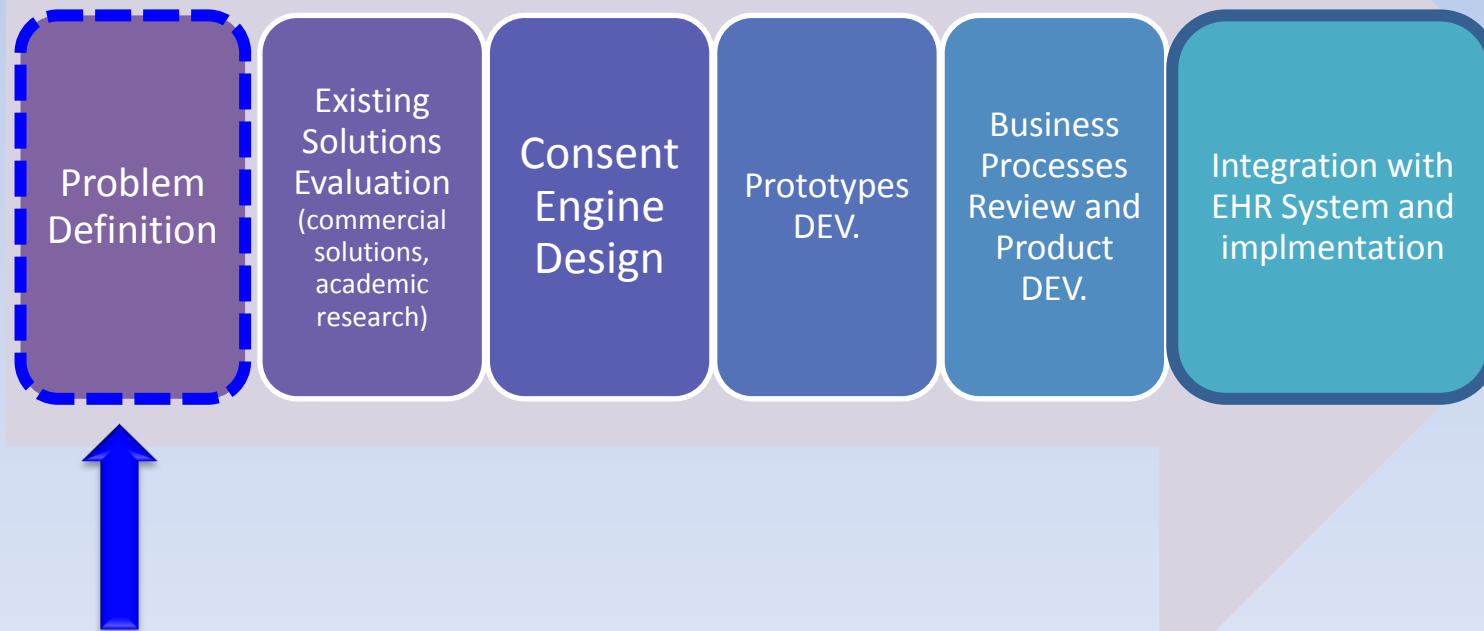– **Will integrate e-Consent management functionality for providing cross condo sharing data view**

Cross facilities sharing data view project

Provide the ability to **dynamically restrict or share** access and viewing of EHR **across facilities**

while

Protecting patient privacy in compliance with patient preferences, laws and regulations

Project Progress

Problem Definition

Existing Solutions Evaluation (commercial solutions, academic research)

Consent Engine Design

Prototypes DEV.

Business Processes Review and Product DEV.

Integration with EHR System and implmentation

Problem Definition: Questions and Concerns

Consent model to use
&
Legal requirements?

Process lifecycle of consent directive?
&
Clinical Workflow?

Ease of data clinical access
&
Privacy protection?

Granularity levels
&
Data?

Patient trust, expectations and education?

Policy decision enforcement
within EHR system?

Problem Definition:
Business and technical considerations

Sharing information cross facilities for providing higher quality services

Supporting multiple roles and access permission profiles of the same individual

Using explicit patient consent with multiple directives types, in multi-facility environment

Controlling information access with compliance of patient preferences, laws and regulations

Problem Definition:
Business and **technical** considerations

Managing high data volume while preserving EHR system processing performance

Ease of use for capturing and managing consent directives

Flexibility of enabling fine and coarse granularity levels

Automated process for ensuring no conflicts between policy directives

Problem Definition:
1-Multiple directives and **conflicts**?

➢ <u>**Directive1:**</u> **Only** the **care provider who ordered** specific lab tests and the **health professionals who are identified** to be copied on the results, **are allowed to access** the test results

➢ <u>**Directive 2:**</u> **Patient** chooses to **restrict access** to one or many of **health professionals who are identified** to be copied

Problem Definition:
2-<u>Granularity</u> of care providers and <u>grouping</u>?

➢ **<u>Directive1</u>**: Patient chooses to **block access** and view to his/her records **except all care providers of cardiology service**

➢ **<u>Directive 2</u>**: Patient **allow full access** to one specific **named cardiologist** working in the same cardiology service

➢ **<u>Directive 3</u>**: Patient **allow limited access** to all the **other care providers** working in the same service

1- Organisational structure of a specific service
2- Functional role of a specific   individual
3- Organisational structure of a specific group of individuals working in a specific service

Problem Definition:

How to deal with multiple directives evaluation and conflict?

Priority

directive6

directive3

directive5

directive2

directive4
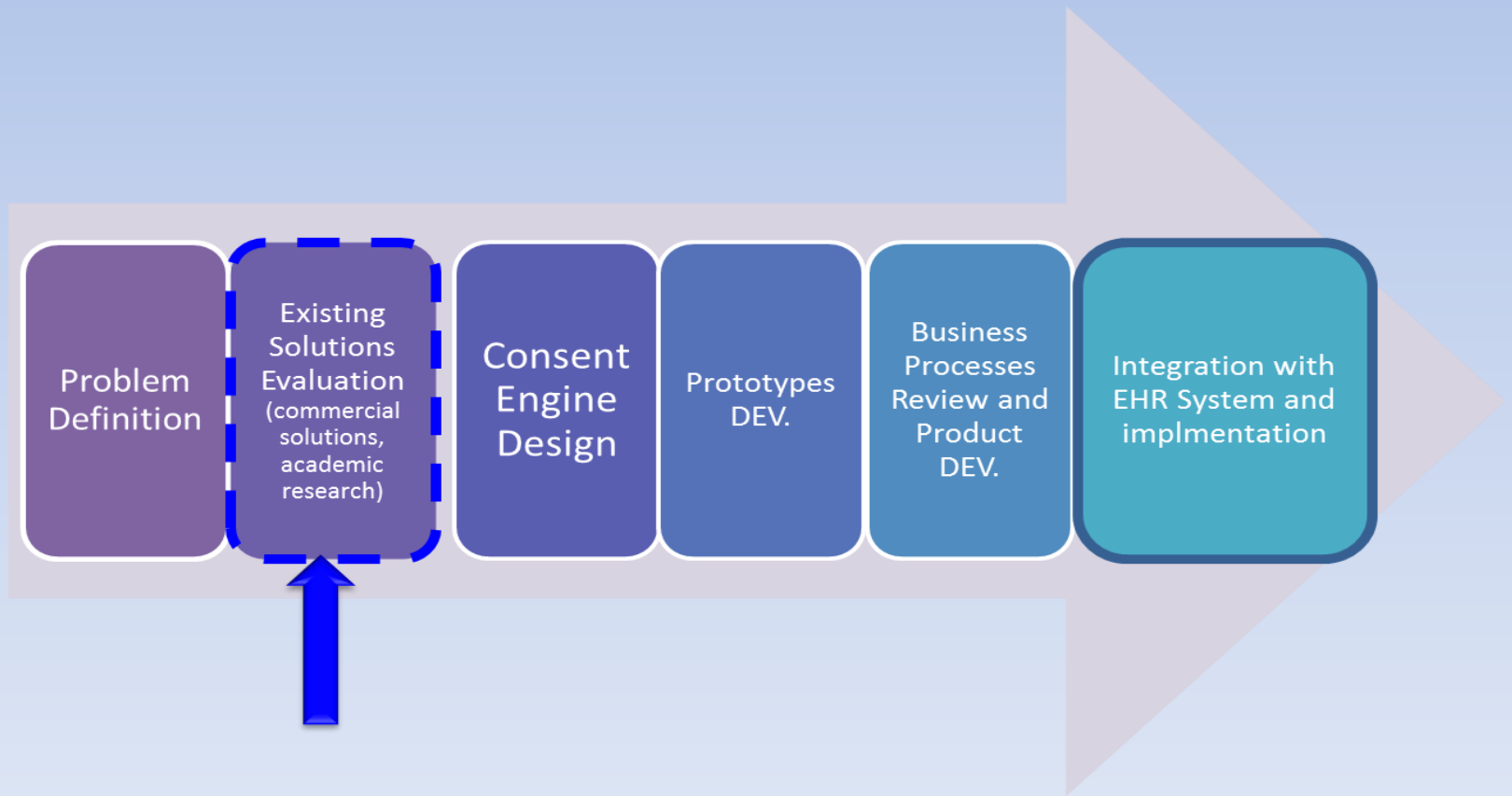
directive1

Granularity levels
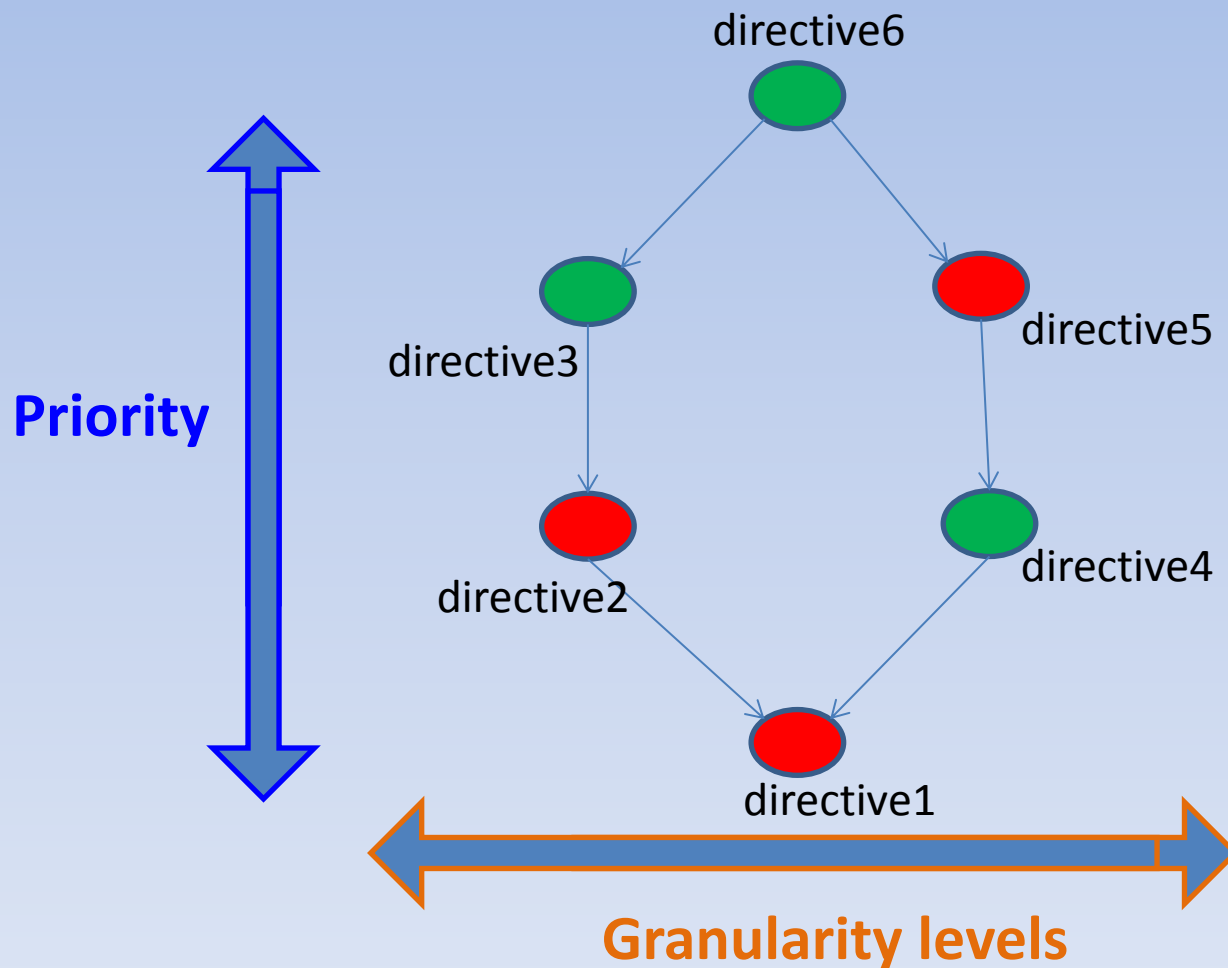
Laws and regulations
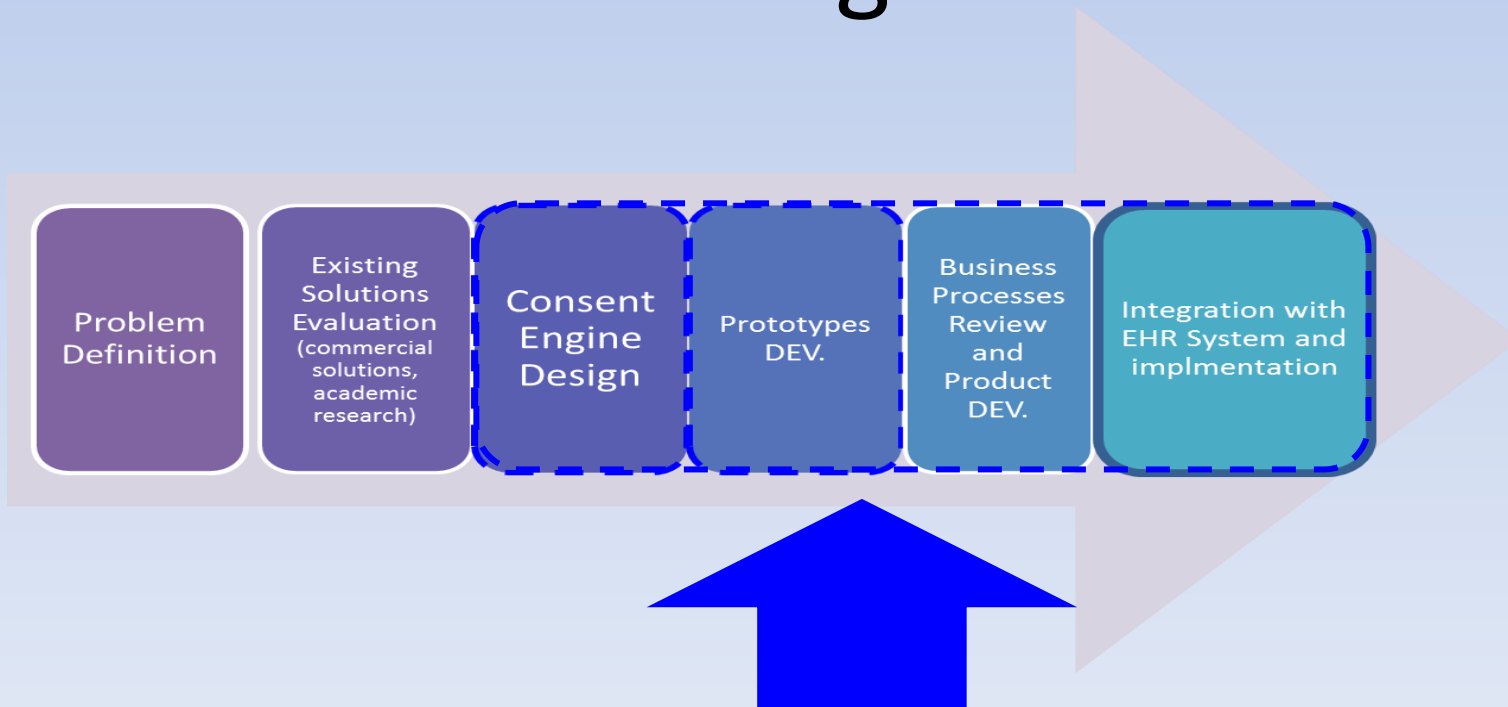
Organisational and domain rules

Patient preferences

Feasibility -- Ease of use -- Reliability -- Complexity -- Maintainability

Project Progress
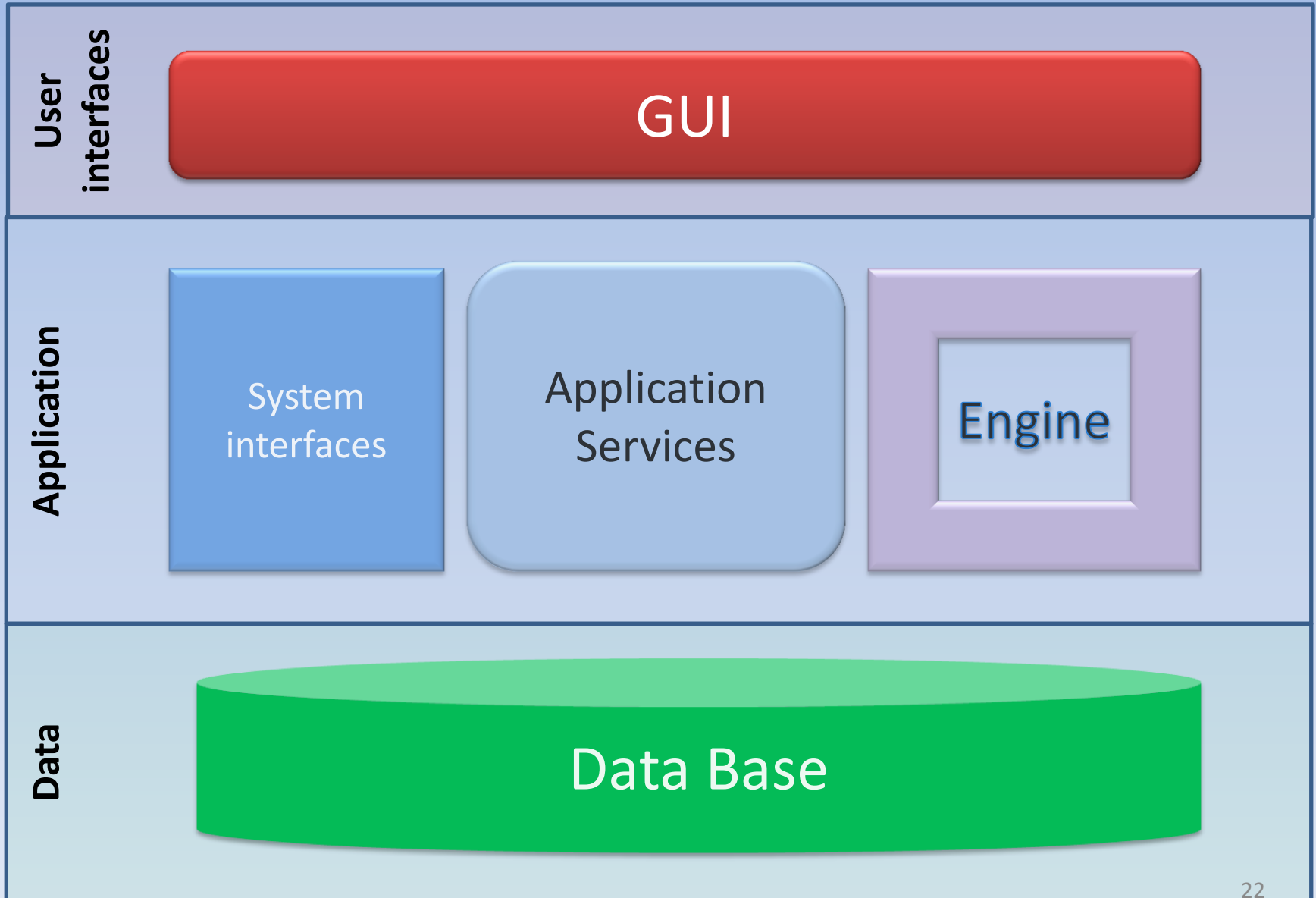
e-Consent Management Solution and Integration

E-Consent Mgmt. solution characteristics…

- ✓ **Any consent model**: Opt-in and Opt-out
- ✓ Automated process for **multiple directives and ensuring no conflict**
- ✓ **Fine and coarse granularity** levels
  - Care providers
  - EHR data elements
- ✓ Capabilities of **applying conditions with in directives**

E-Consent Mgmt. solution characteristics

✓ Ensuring reliability by

 ✓ **Using mathematical notations for consent engine design**

 ✓ **Enabling visual capabilities for validating** directives

✓ **Ease of use** to handle the process life cycle of consent **with granular control**

✓ **Capability to customize the hierarchy structure** of care providers and EHR data elements

E-Consent Mgmt.: Conceptual tiers and services

User interfaces

GUI

Application

System interfaces

Application Services

Engine

Data

Data Base

22

Cross Facility Data Sharing View : Consent management & data view

23

Cross Facility Data Sharing View : Consent management & data view

List of All Available Patient Records

QuadraMed CPR

Main Desktop | MD Inbox | E-Mail | Consent Engine | Log off | Mail | Preferences | Help/About

Tom, Mark — Number: 234, Visit Number: 1234, Location: active IP, Crnt Loc:, Gender: Male, Age: 70Y, Birthdate: 04 Apr 1944, Attending:

Cross-Condo App

Cross-Condo Patient Info

Tom, Mark — Location: 610-B — MRN: — 234 — RAMQ: — 123456
Home Address: — 34 Gemshaw Cres, Arlington VA, 22201 — Birthdate: 04 Apr 1944 — Facility: CHUS
Home Telephone: — Age: 70Y — Visit Count: 4 — Gender: Male

#	Name	Facility	Consent Status	Start Date	End Date	RAMQ	Birthdate	Gender
1	Tom, Mark 34 Gemshaw Cres, Arlington VA, 22201	CHUS	Not Required	-	-	123456	04 Apr 1944	M
2	Tom, Mark Arlington VA, 22201	MAGOG	Denied	01 May 2014	31 May 2014	123456	04 Apr 1944	M
3	Tom, Mark	Coaticook	Permitted	01 Jan 2014	31 Dec 2014		04 Apr 1944	M
4	Tom, Mark Gemshaw Cres, VA, 22201	DeSource	Expired	01 Jan 2013	01 Jan 2013	123456	04 Apr 1944	M
5	Tom, Mark 34 Gemshaw Cres, Arlington VA, 22201	VSF	No Consent	-	-	123456	04 Apr 1944	M

Will provide Break-the-Glass processing for any selected record(s) for which a permitted consent is not available for the current user.

View All | Goto Patient(s)

5 | Confidential & Proprietary

QuadraMed. Quality Care. Financial Health.

Cross Facility Data Sharing View : Consent management & data view

List of All Available Patient Records

QuadraMed CPR

Main Desktop MD Inbox E-Mail Consent Engine   Log off Mail Preferences Help/About

Tom, Mark Number: **234** Location: **active IP** Gender: **Male** Birthdate: **04 Apr 1944**
Visit Number: **1234** Crnt Loc: Age: **70Y** Attending:

Cross-Condo Patient Info

Cross-Condo App

Tom, Mark   Location: **610-B**   MRN: 234   RAMQ: 123456
Home Address: 34 Gemshaw Cres,   Birthdate: 04 Apr 1944 Facility: CHUS
                   Arlington VA, 22201   Age: 70Y   Visit Count: 4
Home Telephone: Gender: Male

Tom, Mark

#	Name	Facility	Consent Status	Start Date	End Date	RAMQ	Birthdate	Gender
1	Tom, Mark 34 Gemshaw Cres, Arlington VA, 22201	CHUS	Not Required	-	-	123456	04 Apr 1944	M
2	Tom, Mark Arlington VA, 22201	MAGOG	Denied	01 May 2014	31 May 2014	123456	04 Apr 1944	M
3	Tom, Mark	Coaticook	Permitted	01 Jan 2014	31 Dec 2014		04 Apr 1944	M
4	Tom, Mark Gemshaw Cres, VA, 22201	DeSource	Expired	01 Jan 2013	01 Jan 2013	123456	04 Apr 1944	M
5	Tom, Mark 34 Gemshaw Cres, Arlington VA, 22201	VSF	No Consent	-	-	123456	04 Apr 1944	M

Will provide Break-the-Glass processing for any selected record(s) for which a permitted consent is not available for the current user.

View All   Goto Patient(s)

QuadraMed
Quality Care. Financial Health.

Infoway Business Requirements for Interoperable Consent Solutions

#	Category	Infoway Business Requirements	E-Consent Mgmt.
1	*Access and authorization to Consent Mgmt Solution (CMS)*	*CMS must have Identity Mgmt capability either part of solution or through integration to an external IDM solution*	√ Provincial NIU
2		*Must support role Based Access (RBA)*	√
3		*Must enforce individual consent directives and jurisdictional specified rules*	√
4		*Must provide the ability to create, store , change, remove an access code*	√
5	*Solution Configuration*	*Must support in both languages administrative functions for the configuration and management*	√
6		*Must support default rules such as granularity of consent*	√
7	*Data capture, storage, retrieval, and enforcement of directives*	*Must support the capture of an individual's consent directives*	√
8		*To capture, update, deactivate consent directives, must include specified structured data elements*	√
9		*Must allow for configurable fields (combination box, drop down lists, yes/no)*	√
10		*Must support the administration of data elements to be captured*	√

*Business and Architecture Considerations for Interoperable Consent Solutions: A discussion document –Infoway 2014

Infoway Business Requirements for Interoperable Consent Solutions

#	Category	Infoway Business Requirements	E-Consent Mgmt.
11		*Must have ability to store consent directives within central repository within or external to product*	√
12		*Capture and manager multiple consent directives for an individual*	√
13		*Support the storage, retrieval and viewing status (active, inactive) for a specific consent directive*	√
14		*Ability to view details of consent directive and history*	√
15		*Must support retrieval and viewing of who has viewed, accesses, overridden or updated a consent directive*	√
16		*Should support the merger and separation of multiple consent directives*	√
17		*Must support unique identification of individuals including proxies and substitute decision makers*	√
18		*Enforcement of consent directives after data is requested and before is transmitted to the requestor*	√ +EHR syst.
19		*Must record, store, retrieve multiple ways of applying consent related business rules*	√
20	*Reporting and Analytics*	*Ability to produce Reports either soft or hard copies*	√

Infoway Business Requirements for Interoperable Consent Solutions

#	Category	Infoway Business Requirements	E-Consent Mgmt.
21	*Reporting and Analytics (cont')*	*Supports the export of data to analytic solutions*	√
22	*Maintenance of historical data and archiving*	*Must support the storage and retrieval of an individual's historical Consent Directives.*	√
23		*Must have the capability to archive either internally or externally to the solution*	√
24	*Notification and Alerts*	*Must support the generation of system generated alerts*	√
25	*Conflict identification /resolution*	*Must support the identification, notification and <u>resolution of consent rule conflicts between new and existing rules</u>*	√
26	*Overrides*	*Must support the override of an individual's consent Directive*	√
27	*Logging*	*Must log all actions related to CMS and Consent Directives*	√
28	*Viewing of Data*	*Must allow IT system administrators to access and view consent Directive override data details when necessary*	√

Conclusion

- ✓ **Developing an ease of use e-consent** mgmt. solution with an **automated process** for ensuring **no conflict** is possible

- ✓ **Patient unique identification** is the **main and critical factor** for **sharing the right information** of the same patient person

- ✓ **Data quality** is also **required** for
  - ✓ having a **unique identification** and the **right** data **segmentation** to build the **right**:
    - ▪ Organisational & functional hierarchy
    - ▪ EHR data structure

- ✓ **Alignment** of **consent** process **lifecycle** with **clinical process** and their impact **should not be underestimated**

- ✓ **Solid foundation** is required for **achieving interoperability** between e-consent management functionality and EHR system

Contacts

E-Consent mgmt solution

- Hassan Diab Ph.D in SE
  - ASSSE, Sherbrooke, Qc
  - hdiab.chus@ssss.gouv.qc.ca
- Marc Frappier **Pr.**
  - Sherbrooke University, Sherbrooke, Qc
  - Marc.Frappier@usherbrooke.ca

QCPR from Quadramed

- Andrea Ernst-Bissinger, R.N., B.Sc.N, Product Manager QCPR for Canada
  - Andrea.ernstbissinger@quadramed.com

THANK YOU!