

**IHE**<sup>®</sup> | EXPERIENCE  
EUROPE DAYS

**VIENNA 2025**  
24-25 JUNE 🇦🇹

# National implementation on Laboratory - France



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<https://esante.gouv.fr>



## French e-health agency



### REGULATE

#### Interoperability

CI-SIS, MOS-NOS,  
SMT, Gazelle, Convergence  
Projectathons

#### Core digital services

INS  
MS Santé

#### Security

PGSSI-S  
HDS

#### Certifications

Sécur Numérique  
Mon Espace Santé  
Télésanté, DMN de télésurveillance

#### Europe & International

MaSanté@UE  
Sesali



### OPERATE

#### Directories

Annuaire santé  
RPPS, ROR, FINES

#### Identification & electronical authentication

CPS  
Certificats personnes morales & serveurs  
ProSanté Connect and eCPS

#### Hospital journey simplification

SIMPHONIE, Diapason, ROC



### PROMOTE ET VALORIZE

#### Actors support

G\_NIUS  
Portail industriel  
GRADEs

#### Ecosystem activities

Webinaires  
Formations en ligne

# Exchange of laboratory report : Why ?

1. Display lab report
2. Display alerts
3. Plot graph, table
4. Compare results from different laboratories

## Semantic Interoperability

**XDM/1.0/DDM**  
 ni.mi2708@pro.formation.mssante.fr  
 Envoyé : 24/04/2017 11:40:43  
 À : virginie.medecinrpps-adeli7@medecin.formation.mssante.fr Type : CDA

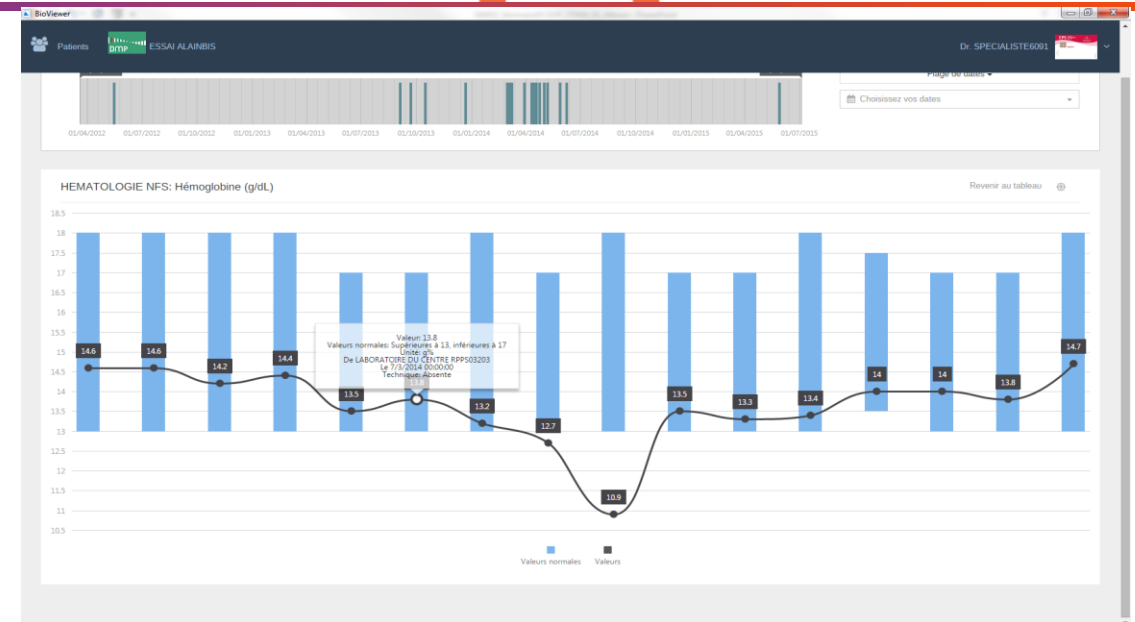
**BIOCHIMIE**

**Electrophorèse des protéines sériques :**

**Protéinogramme**

04/04/2017 13:19:33 Valeurs de référence

|                            |                |               |
|----------------------------|----------------|---------------|
| Protéines totales (g/L)    | 75,0           | 63,00 - 83,00 |
| Albumine (%)               | 60,0           | 40 - 80       |
| Albumine (g/L)             | 45,0           | 36,00 - 48,00 |
| Alpha 1 globulines (%)     | 5,0            |               |
| Alpha1 (g/L)               | 3,8            | 0,80 - 3,20   |
| Alpha 2 globulines (%)     | 9,0            | 8,3 - 10,1    |
| Alpha2 (g/L)               | 6,8            | 4,50 - 10,50  |
| Béta globulines (%)        | 11,0           | 6 - 12        |
| Béta (g/L)                 | 8,3            | 3,50 - 9,50   |
| Gamma globulines (%)       | 15,0           | 8 - 17        |
| Gamma (g/L)                | 11,3           | 6,50 - 14,50  |
| Ratio albumine / globuline | 1,50           | 1 - 5         |
| Conclusion                 | Bisalbuminémie |               |



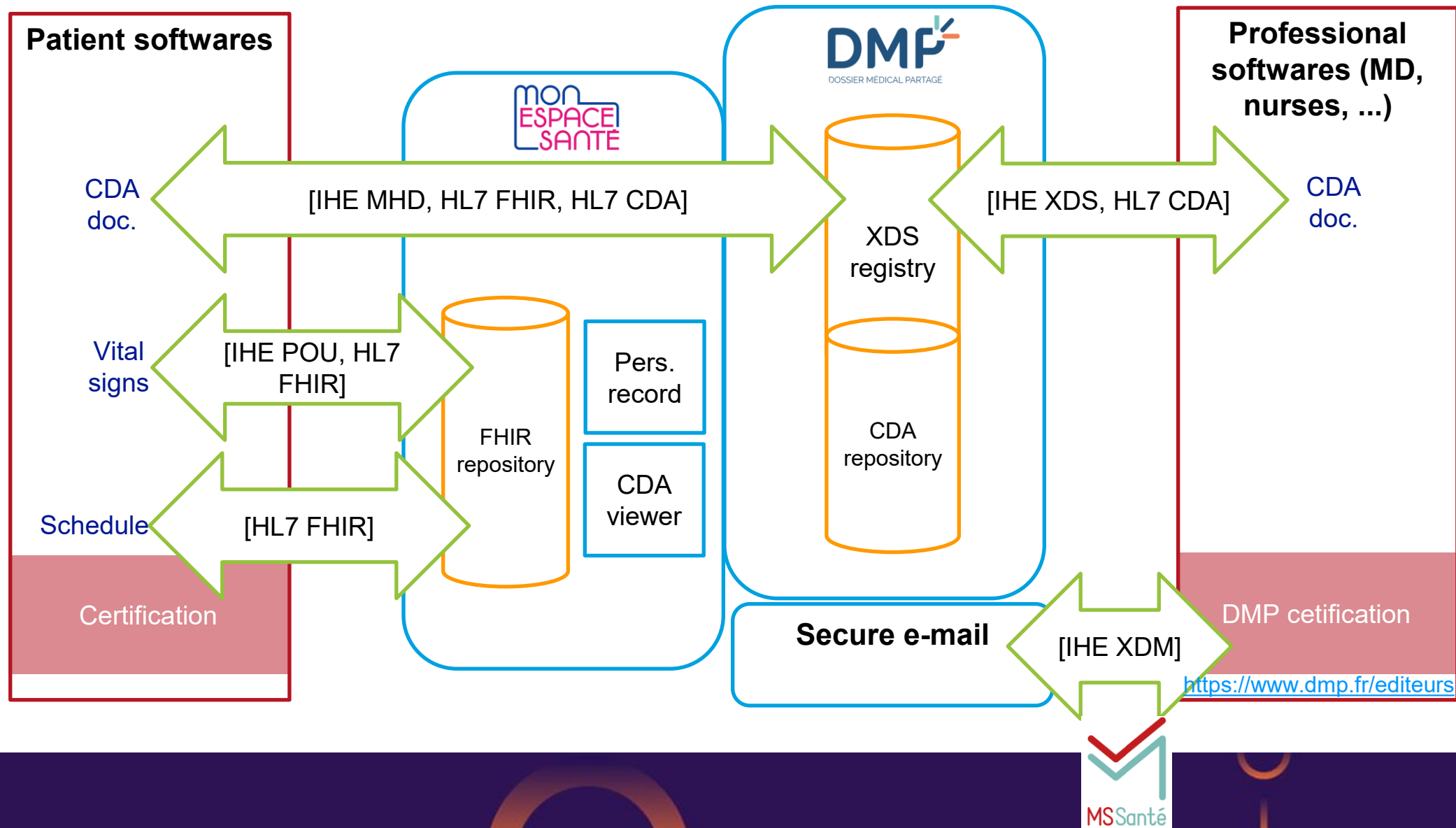
Filtrer par nom d'examen, code LORNC

Choisir un profil

Gérer les profils

Alertes médicales: ☐

|                         | 17/4/2014 00h | 12/4/2014 14h | 11/4/2014 00h | 10/4/2014 00h | 9/4/2014 00h |
|-------------------------|---------------|---------------|---------------|---------------|--------------|
|                         | CR            | CR            | CR            | CR            | CR           |
| <b>HEMATOLOGIE NFS</b>  |               |               |               |               |              |
| Hémoglobine (g/dL)      | 13.5 g%       | 10.9 g/dl     |               | 12.7 g%       |              |
| <b>HEMATOLOGIE COAG</b> |               |               |               |               |              |
| Fibrinogène (g/l)       |               | 7.92 g/l      |               |               |              |
| <b>IONO</b>             |               |               |               |               |              |
| Ca (mmol/L)             |               | 2.18 mmol/l   |               |               |              |
| <b>FONCTION RENALE</b>  |               |               |               |               |              |
| Urée (mmol/l)           | 8.3 mmol/l    | 8.4 mmol/l    |               | 7.3 mmol/l    |              |
| Créatinine umol/l       | 107 umol/l    | 110.3 umol/l  |               | 94 umol/l     |              |
| <b>BIOCHIMIE GENE</b>   |               |               |               |               |              |
| ALAT                    | 12 UI         |               |               | 16 UI         |              |
| Acide urique            |               |               |               |               |              |





IHE XDS  
IHE XD-LAB (CDA)  
IHE ATNA

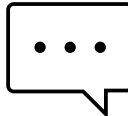
## Profiles



Interoperability framework,  
studies, expertise (IHE Profiles)  
Information  
Support

2009 : CI-SIS

## Terminology



Multi-terminologies serveur  
Terminology management  
center  
Support

2020 : Terminology serveurs



Loinc - M

Ucum - M

Snomed - O

## Certification

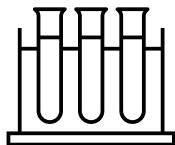


Interoperability certification  
Ségur  
Support

2021 : Ségur

DMP Certification  
Segur certification

## Tests



Testing zone  
Testing scenarios  
Projectation  
Support

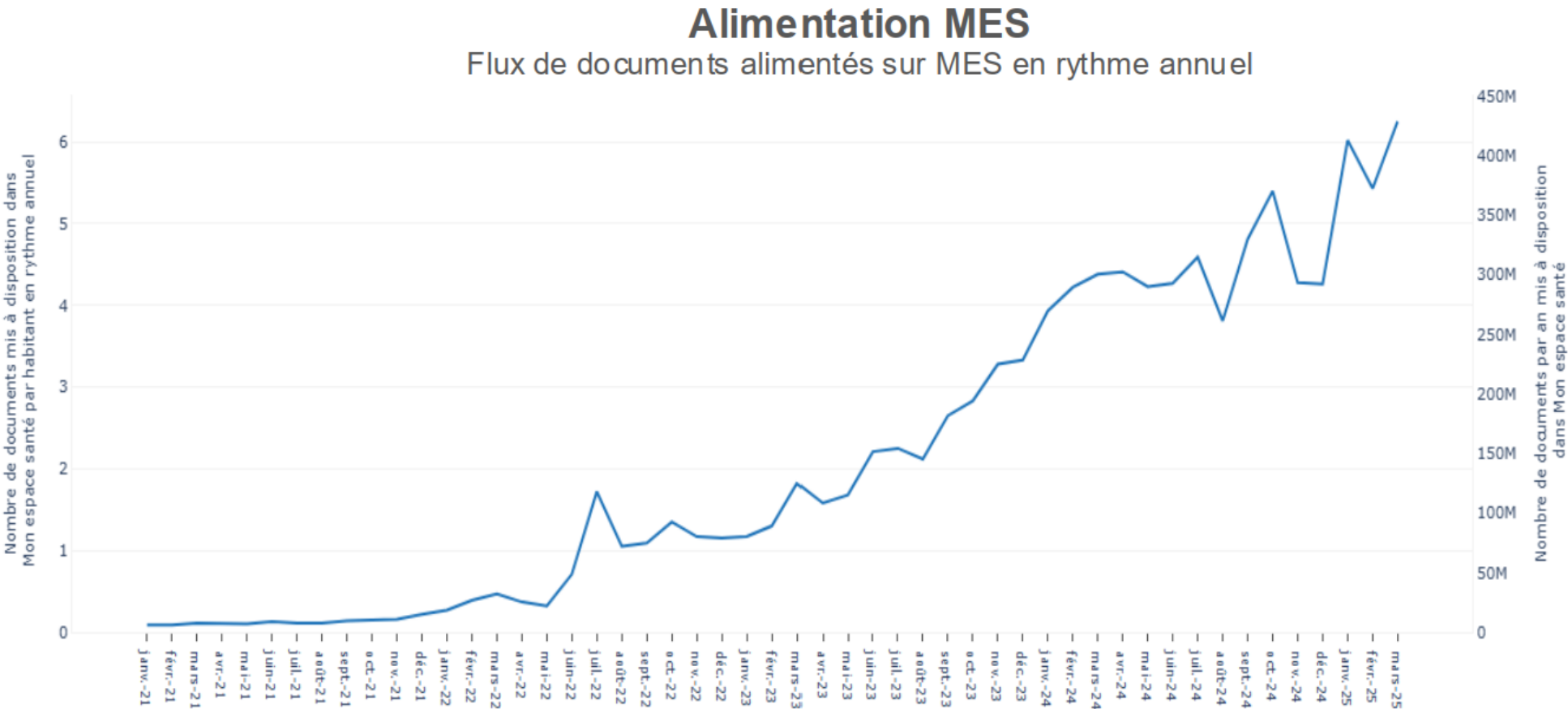
2019 : #MyHealth2022

IHE XDS

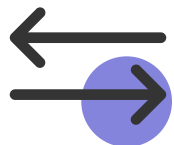
IHE XDM

IHE XD-LAB

## Number of CDA documents in MES / DMP - Mon espace santé





**45** vendors, **200** people**370** tests**6428** messages on the  
coordination tool**10** interoperability workshops**4,5/5** satisfaction survey

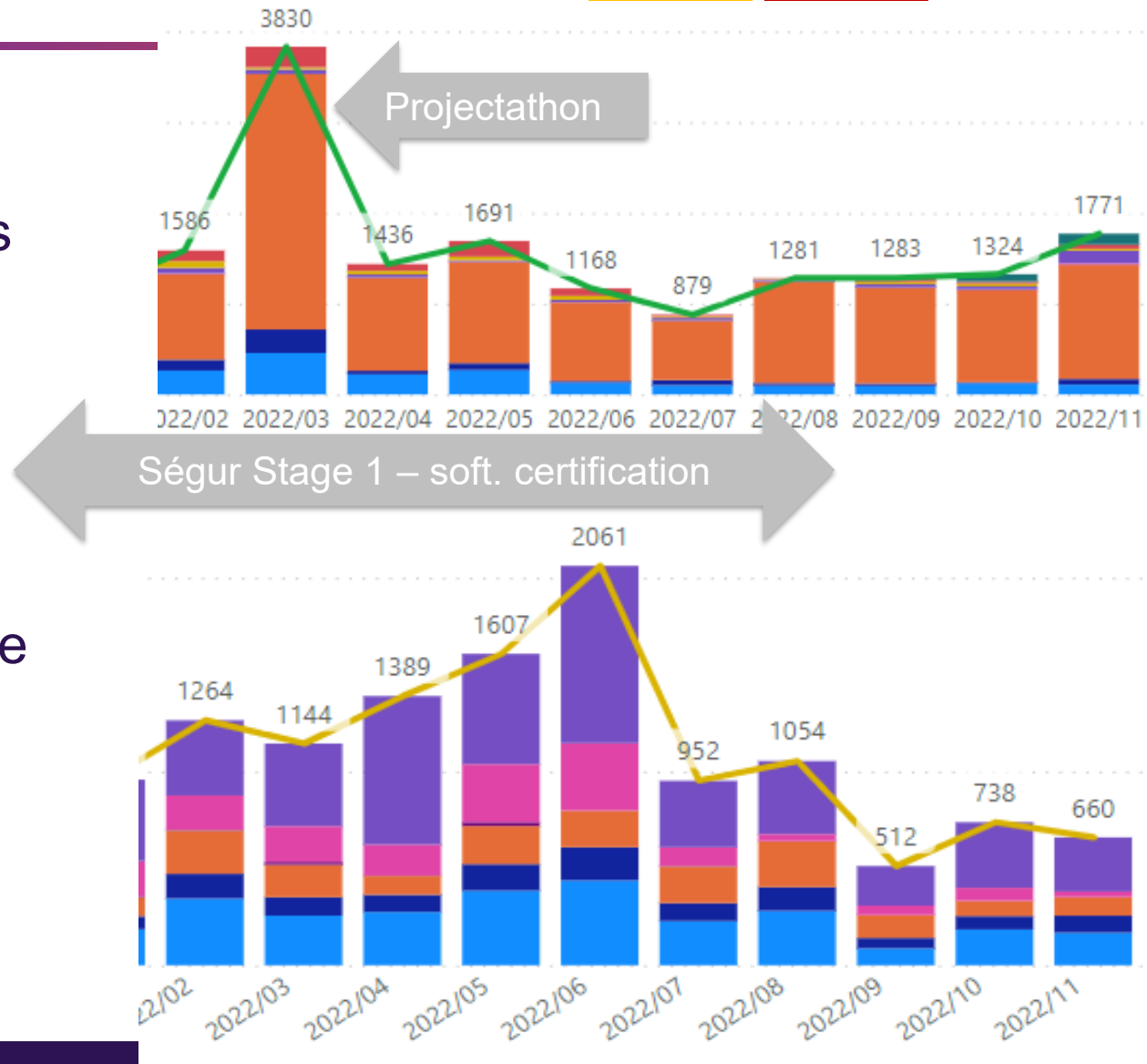
«A lot of excitement around CDA topics, motivated partners, super super available monitors ! »

« A very good dynamic, we were able to carry out several tests with other vendors. The monitors were challenging and enabled us to highlight some of the shortcomings of our products.»

« It was a great idea to bring together all the vendors for these interoperability tests. Facilitates exchanges. »



- #MyHealth2022
  - National interoperability testing tools
    - <https://interop.esante.gouv.fr/>
  - FHIR National terminology server
    - <https://smt.esante.gouv.fr/>
    - <https://smt.esante.gouv.fr/fhir/>
  
- Enable vendors to check the compliance of their information system(s)
  - Access to test tools in self-service;
  - Projectathons (3 days)
  - Certification process





## Problem 1: many Loinc codes

| Status | LOINC   | Long Common Name                                                                | Component                          |
|--------|---------|---------------------------------------------------------------------------------|------------------------------------|
| ▼      | ▼       | ▼                                                                               | ▼                                  |
|        | 72650-5 | Glucose in serum - glucose in pericard fld [Molar concentration difference]     | Glucose.serum-glucose.pericard fld |
|        | 72649-7 | Glucose in serum - glucose in peritoneal fluid [Molar concentration difference] | Glucose.serum-glucose.perition fld |
|        | 72651-3 | Glucose in serum - glucose in pleural fluid [Molar concentration difference]    | Glucose.serum-glucose.plr fld      |
|        | 18296-4 | Glucose [Interpretation] in Serum or Plasma--post dose glucose                  | Glucose^post dose glucose          |
|        | 47622-6 | Glucose [Moles/volume] in Serum or Plasma --pre dose glucose                    | Glucose^pre dose glucose           |
|        | 72648-9 | Glucose in serum - glucose in synovial fluid [Molar concentration difference]   | Glucose.serum-glucose.syn fld      |
|        | 30265-3 | Glucose [Moles/volume] in Serum or Plasma --1.3 hours post dose glucose         | Glucose^1.3H post dose glucose     |
|        | 30266-1 | Glucose [Moles/volume] in Serum or Plasma --1.6 hours post dose glucose         | Glucose^1.6H post dose glucose     |

## Problem 2: Loinc codes change according with the unit

### ▼ Biochimie

| AUTRES EXAMENS DE BIOCHIMIE SANGUINE | Résultats | Valeurs de référence |
|--------------------------------------|-----------|----------------------|
| Glycémie à jeun (UV Hexokinase)      | 0.88 g/L  | (0.70 - 1.08)        |

|                                                                          |                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 53049-3 - Glucose à jeun [Masse/Volume] ;<br>Sérum/Plasma ;<br>Numérique | + Entrée : FR-Resultat-examens-de-biologie-element-clinique-pertinent<br>* libellé d'édition : glucose<br>* code : 53049-3 - Glucose à jeun [Masse/Volume] Sérum/Plasma ; Numérique<br>* résultat : 0.88<br>* unité : g/L<br>* interprétation : N - Normal<br>* valeurs de référence : 0.70 g/L - 1.08 g/L |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| AUTRES EXAMENS DE BIOCHIMIE SANGUINE | Résultats  | Valeurs de référence |
|--------------------------------------|------------|----------------------|
| Glycémie à jeun (UV Hexokinase)      | 4.89 mol/L | (3.89 - 6.00)        |

|                                                                          |                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 40193-5 - Glucose à jeun [Moles/Volume] ;<br>Sérum/Plasma ;<br>Numérique | + Entrée : FR-Resultat-examens-de-biologie-element-clinique-pertinent<br>* libellé d'édition : glucose<br>* code : 40193-5 - Glucose à jeun [Moles/Volume] Sérum/Plasma ; Numérique<br>* résultat : 4.89<br>* unité : mol/L<br>* interprétation : N - Normal<br>* valeurs de référence : 3.89 mol/L - 3.89 mol/L |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

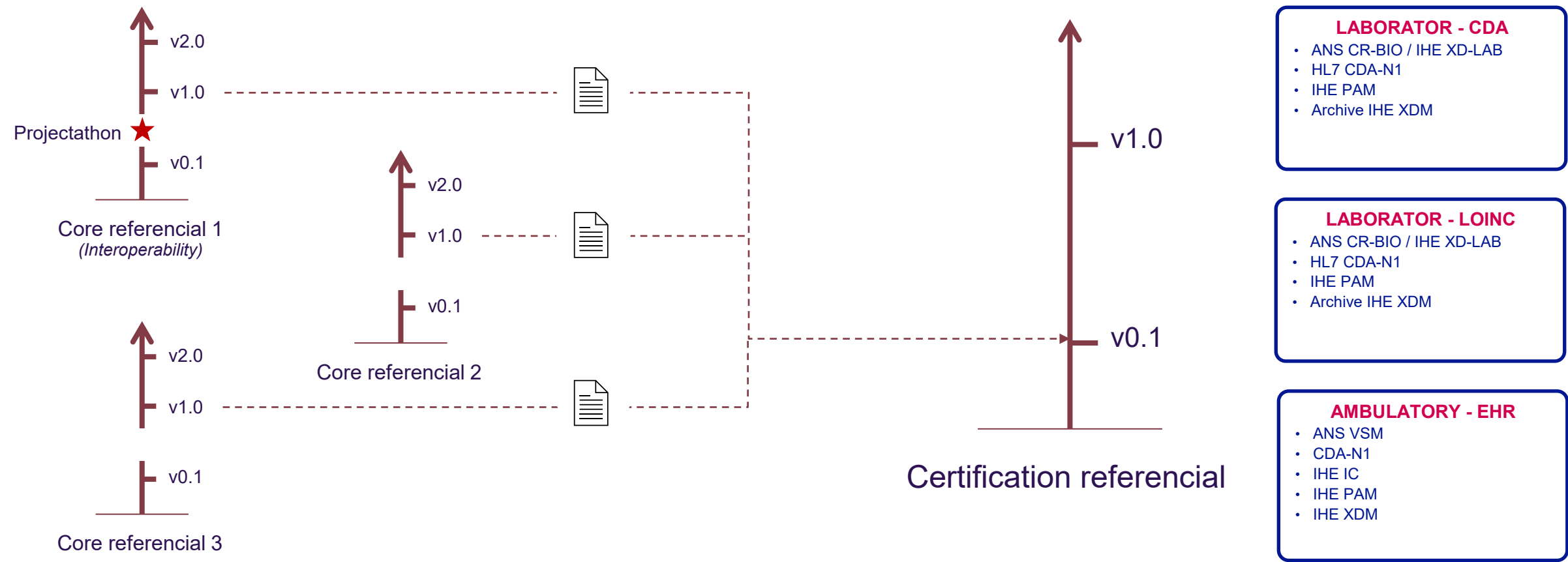
Provide a catalog / values sets, ready to use :

- Provide a list of the TOP 200 most frequent analyses
- Define and promote the use of clinically relevant LOINC codes
- Enable secure comparability of analysis using LOINC / UCUM / Method

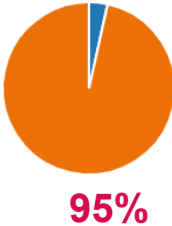
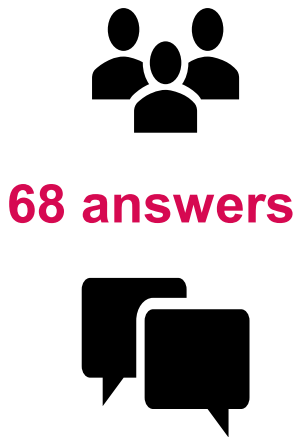


<https://smt.esante.gouv.fr/terminologie-jeu-de-valeurs-circuit-de-la-biologie/>

| P                   | Q                             | R    | S       | T                                                      | U                                        |                                 |                   | X                 |            | Z                        |                | AB                               | AC                 | AD         |
|---------------------|-------------------------------|------|---------|--------------------------------------------------------|------------------------------------------|---------------------------------|-------------------|-------------------|------------|--------------------------|----------------|----------------------------------|--------------------|------------|
| Sous-chapitre LOINC | Libellés sous-chapitres LOINC | Rang | LOINC   | Libellés français de référence                         | Libellés d'édition (Référentiel JDV ANS) | Niveau minimum de comparabilité | JDV restreint O/N | Unité recommandée | Unité UCUM | Présence systéma. CR O/N | Correspondance | Facteur de conversion des unités | Date de validation | Version VP |
|                     |                               | 4338 | 2160-0  | Créatinine [Masse/Volume] Sérum/Plasma ; Numérique     | Créatinine                               | 2                               | O                 | mg/L              | mg/L       | N                        | 14682-9        | 8,84                             | 15/01/2019         | V1.1.10    |
|                     |                               | 4339 | 14682-9 | Créatinine [Moles/Volume] Sérum/Plasma ; Numérique     | Créatinine                               | 2                               | O                 | µmol/L            | umol/L     | O                        | 2160-0         | 0,113                            | 15/07/2017         | V1.1.5     |
|                     |                               | 4178 | 40193-5 | Glucose à jeun [Moles/Volume] Sérum/Plasma ; Numérique | Glucose à jeun                           | 1                               | O                 | mmol/L            | mmol/L     | O                        | 53049-3        | 0,18                             | 15/07/2017         | V1.1.5     |
|                     |                               | 4180 | 53049-3 | Glucose à jeun [Masse/Volume] Sérum/Plasma ; Numérique | Glucose à jeun                           | 1                               | O                 | g/L               | g/L        | N                        | 40193-5        | 5,551                            | 15/07/2018         | V1.1.8     |



**We wanted to evaluate our approach** and our actions with manufacturers in order to identify areas for improvement. A questionnaire was sent to developers who have interacted with us.  
This represents **297** people, mainly **developers and interoperability experts**.



Actions identifiées

More validators (ORU/MDM)

Improved integration

Continue the webinars

Improved operating procedures

.....

## Future ?

### Future

- EHDS
- « European format »
- FHIR Lab report

### Consolidate

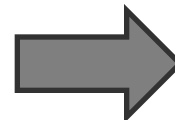
- Deployment of Loinc
- Certification of transcoders

### Migrate

- From XD-LAB to FHIR Lab Report
- From HL7-V2 (ILW, LTW) to FHIR ?
- Using logical model

<https://ansforge.github.io/IG-document-core/main/ig/>

| Nom                       | Drapeaux | Card. | Type            |
|---------------------------|----------|-------|-----------------|
| EnteteDocument            |          | 1..1  | Base            |
| identifiantUniqueDocument |          | 1..1  | Identifier      |
| modeleDocument            |          | 1..1  | Identifier      |
| typeDocument              |          | 1..1  | CodeableConcept |
| titreDocument             |          | 1..1  | string          |



| Source Code                              | relation         | Target Code                    |
|------------------------------------------|------------------|--------------------------------|
| EnteteDocument.identifiantUniqueDocument | is equivalent to | ClinicalDocument.id            |
| EnteteDocument.modeleDocument            | is equivalent to | ClinicalDocument.templateId    |
| EnteteDocument.typeDocument              | is equivalent to | ClinicalDocument.code          |
| EnteteDocument.titreDocument             | is equivalent to | ClinicalDocument.title         |
| EnteteDocument.dateDeCreationDocument    | is equivalent to | ClinicalDocument.effectiveTime |