

# 'Experience of deploying a SNOMED CT based EMR using a French translated subset in an academic Belgian hospital'

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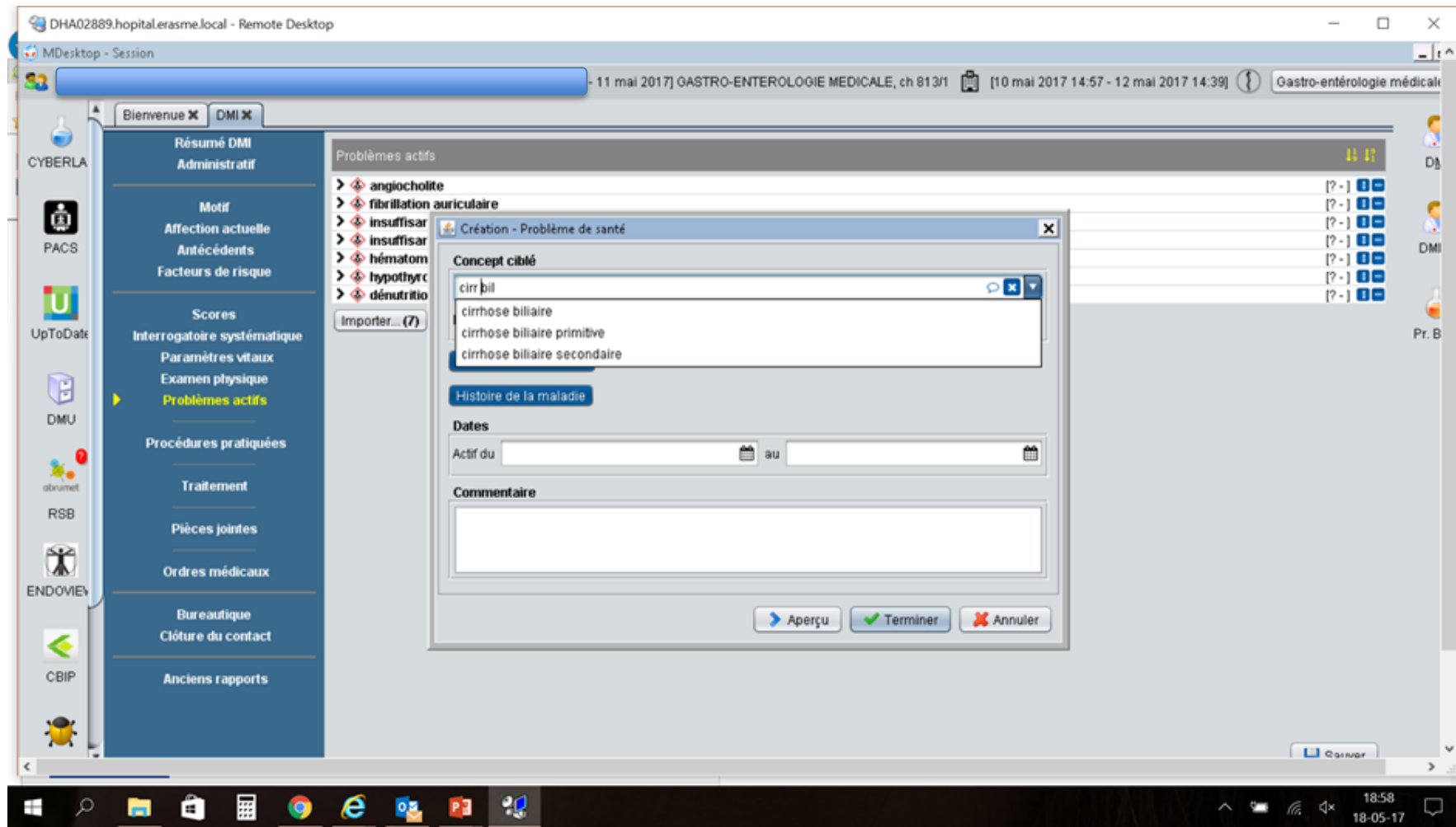


- Semantic interoperability of health care data, using SNOMED CT, is a cornerstone of the Belgian eHealth plan 2015-2018
- As the Belgian software market does not provide a solution fully-based on SNOMED CT, we developed an in-house EMR able to exploit the richness of the terminology.
- The objective is to share with you this Belgian experience, targeting deployment of a newly available SNOMED CT (subset) translation

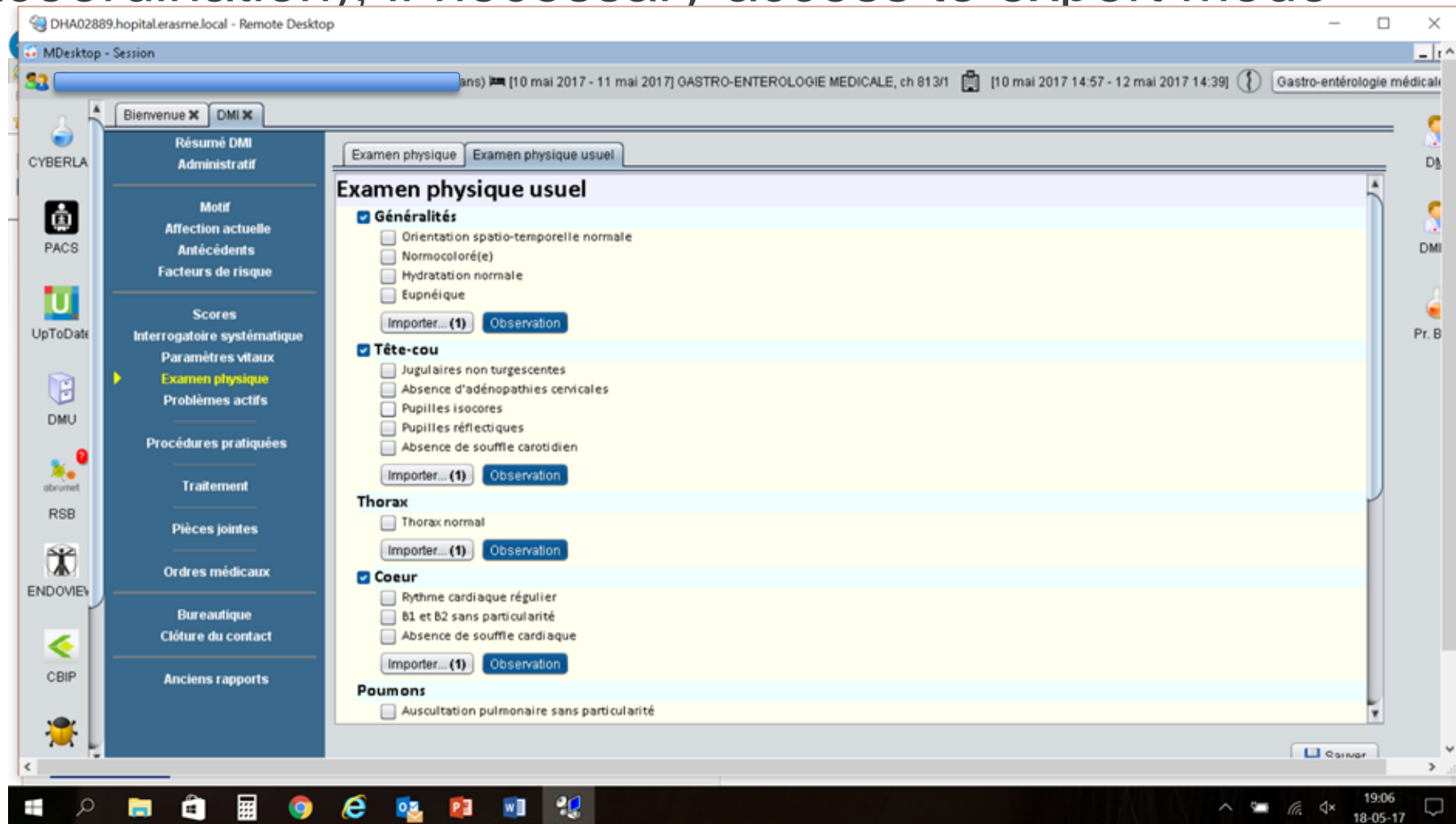
- Belgian NRC subset
  - Initial: 79287 Clinical Findings & 25249 Procedures (2010)
  - Selection & translation in french and dutch of 43% and 70% of Clinical Findings and Procedures, respectively.
  - Retrospective testing on hospital records -> 85% adequate coverage
  - Flat lists, no use of relationships
  - Translation still ongoing
- Erasme Hospital extension
  - French NRC subset +
  - Standardization, adding parent concepts and terms asked by medical specialists
  - Only preferred terms, no synonyms
  - Precoordinated expressions

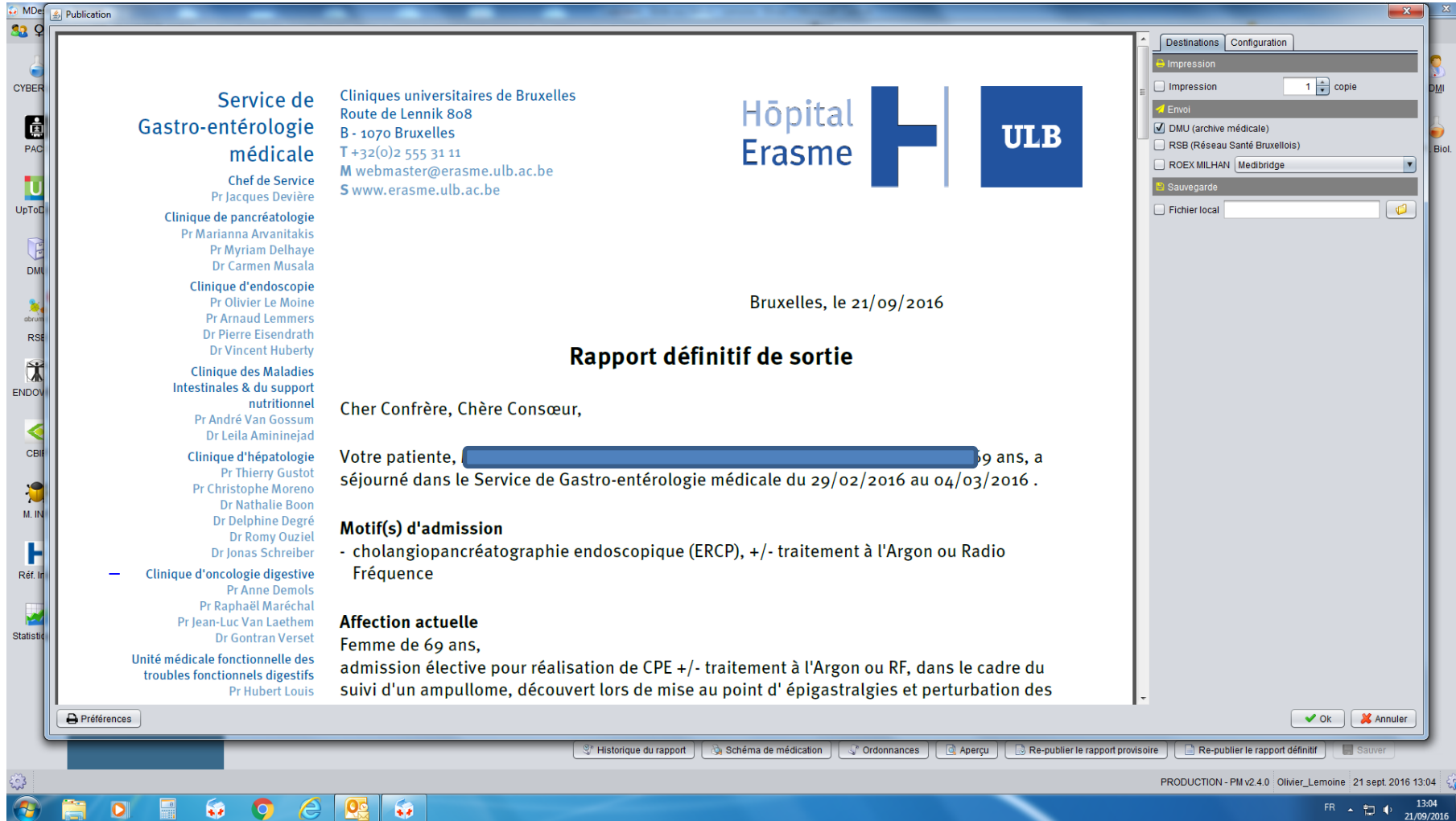
- Hospital IT team development (Snomed CT backbone)
- Artifacts covered: reason for admission, risk factors (allergies, implants, nutritional, addictions, social factors...), systematic review of systems, physical examination, past history (personal & familial), active problems, procedures, staging & scales
- Artifacts and values are coded in Snomed CT
- Free text is only allowed to improve the granularity of a structured item
- Only 3 general templates (admission, discharge, consultation) for all medical / surgical specialties

- Expert mode: lists and letters to select the adequate description



- Template mode: check boxes, short lists (may include postcoordination), if necessary access to expert mode





**Service de Gastro-entérologie médicale**  
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Pr Myriam Delhayé  
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Hôpital Erasme  

Bruxelles, le 21/09/2016

## Rapport définitif de sortie

Cher Confrère, Chère Consœur,

Votre patiente, [REDACTED] 69 ans, a séjourné dans le Service de Gastro-entérologie médicale du 29/02/2016 au 04/03/2016 .

**Motif(s) d'admission**  
- cholangiopancreatographie endoscopique (ERCP), +/- traitement à l'Argon ou Radio Fréquence

**Affection actuelle**  
Femme de 69 ans,  
admission éleçtive pour réalisation de CPE +/- traitement à l'Argon ou RF, dans le cadre du suivi d'un ampullome, découvert lors de mise au point d' épigastralgies et perturbation des

Destinations Configuration

Impression  
 Impression 1 copie

Envoi  
 DMU (archive médicale)  
 RSB (Réseau Santé Bruxellois)  
 ROEX MILHAN Medbridge

Sauvegarde  
 Fichier local

OK Annuler

Historique du rapport Schéma de médication Ordonnances Aperçu Re-publier le rapport provisoire Re-publier le rapport définitif Sauver

PRODUCTION - PM v2.4.0 Olivier\_Lemoine 21 sept. 2016 13:04

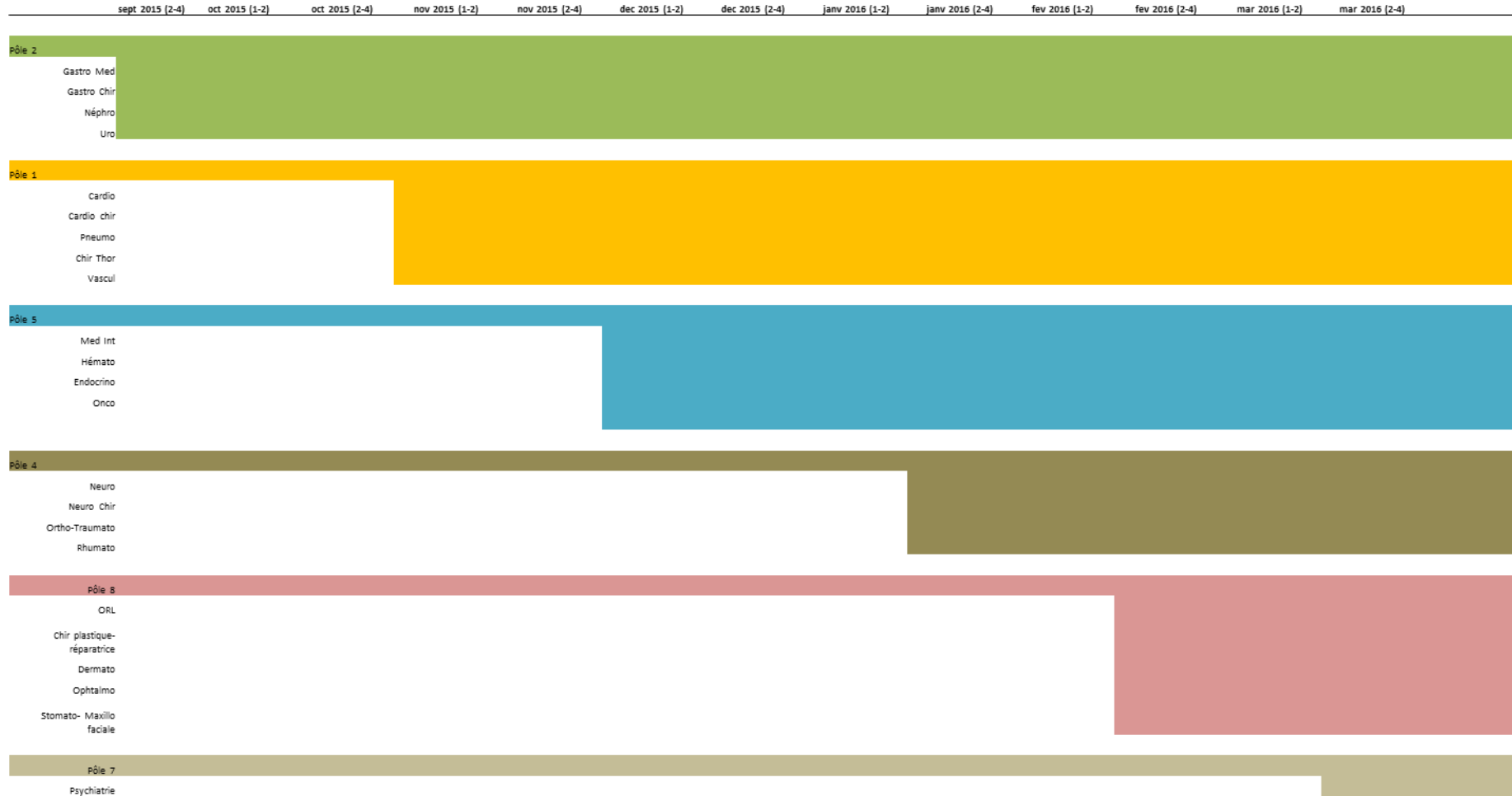
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- Strong support from executives
- Information on Snomed CT & EMR benefits (all care givers) during the year before deployment
- Creation of a specific Multidisciplinary Support Group for information, training and support
- Training to EMR 1 month before deployment
- Continuous education/training (new doctors, students)
- Continuous information (new releases)
- Continuous information to users about EMR usage (statistics) in the Hospital

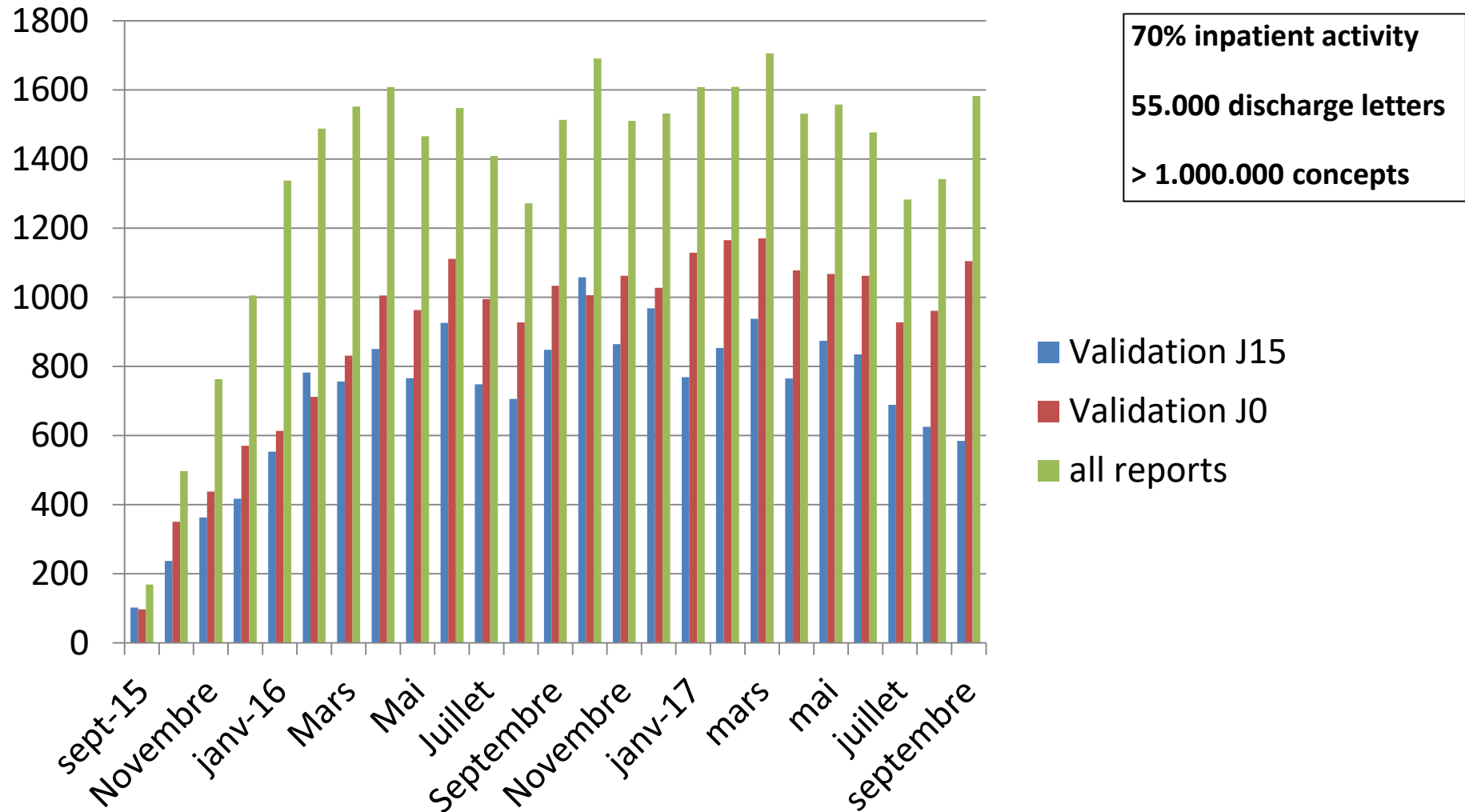


- Academic Hospital (tertiary/quaternary)
- ~ 900 beds
- ~ 45.000 admissions
- ~ 360.000 outpatients
- ~ 3.500 employees
- ~ 500 doctors & medical students
  
- INITIAL SCOPE of the EMR: **inpatients** excluding One-Day clinic and some clinical departments having already an IT solution

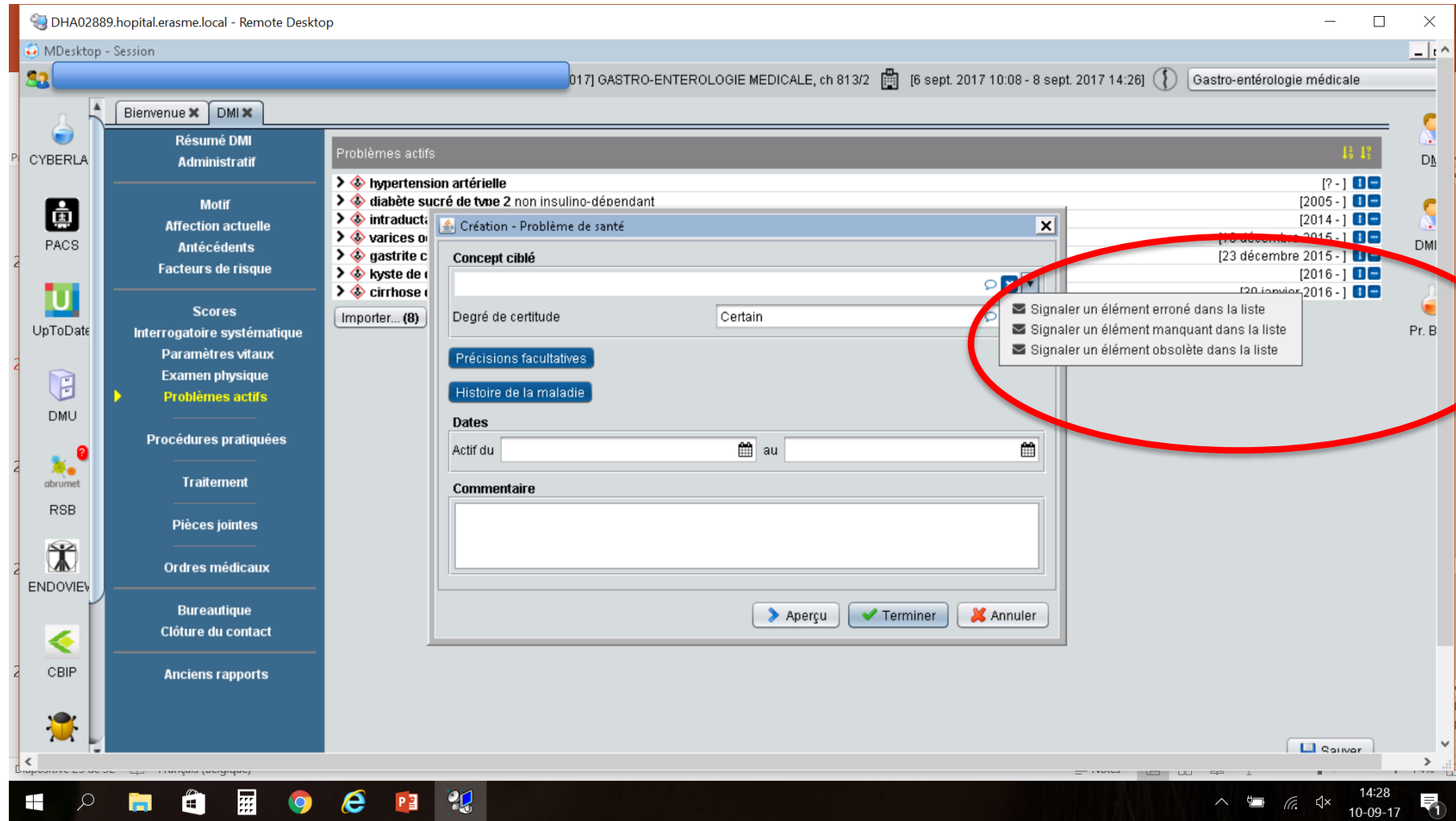
# RESULTS: MASSIVE DEPLOYMENT OVER 6 MONTHS



# Discharge reports generated monthly since September 2015



# TERMINOLOGY REQUESTS ONLINE / REALTIME !

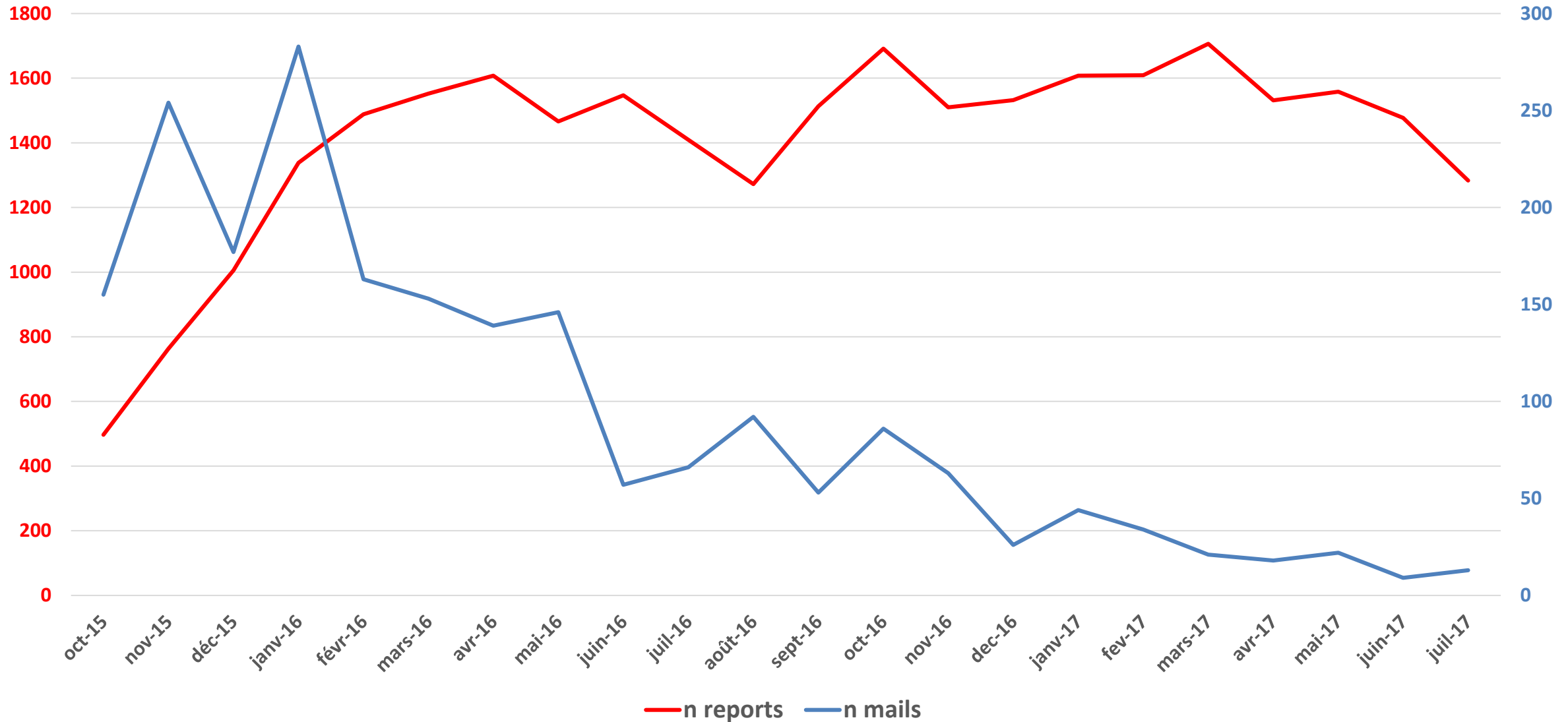


The screenshot displays a medical software interface for 'Gastro-entérologie médicale'. A 'Création - Problème de santé' dialog box is open, showing fields for 'Concept ciblé', 'Degré de certitude' (set to 'Certain'), 'Dates', and 'Commentaire'. A red circle highlights a feedback menu with the following options:

- Signaler un élément erroné dans la liste
- Signaler un élément manquant dans la liste
- Signaler un élément obsolète dans la liste

The background interface includes a sidebar with navigation options like 'Résumé DMI', 'Motif', 'Affection actuelle', and 'Problèmes actifs'. The main area shows a list of active problems, including 'hypertension artérielle' and 'diabète sucré de type 2 non insulino-dépendant'.

# NUMBER OF CHANGE REQUESTS TO TERMINOLOGY OVER TIME: A CONTINUOUS CHALLENGE



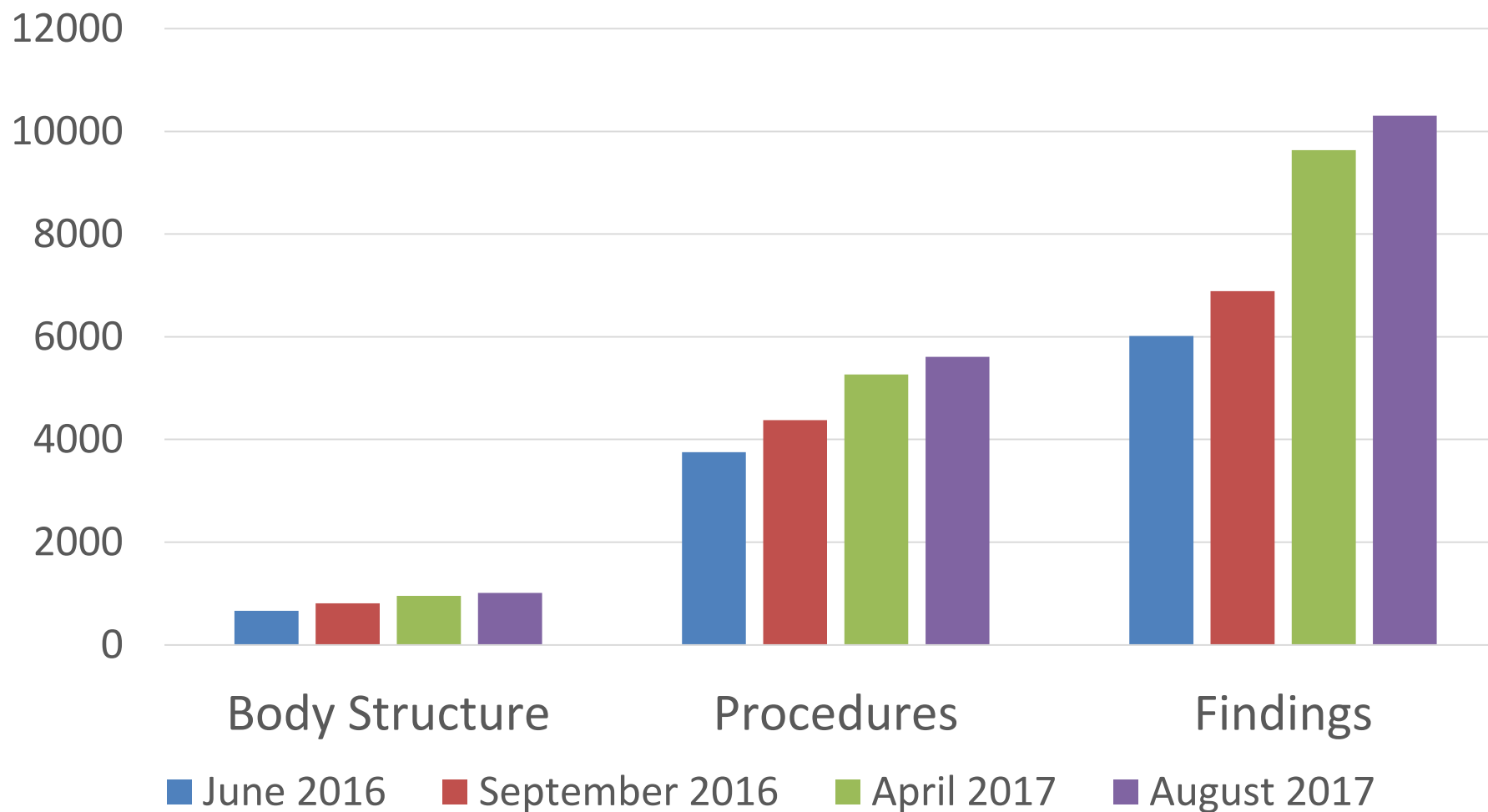
# PROPORTION OF CHANGE REQUESTS : TERMINOLOGY IS A CONTINUOUS CHALLENGE AS OF JULY 2017

Type of request	Proportion
Missing terms	92 % (2080)
Erroneous terms	7 % (161)
Obsolete terms	1 % (20)

# ACTUAL NUMBER OF TRANSLATED CONCEPTS (JUNE 2017)

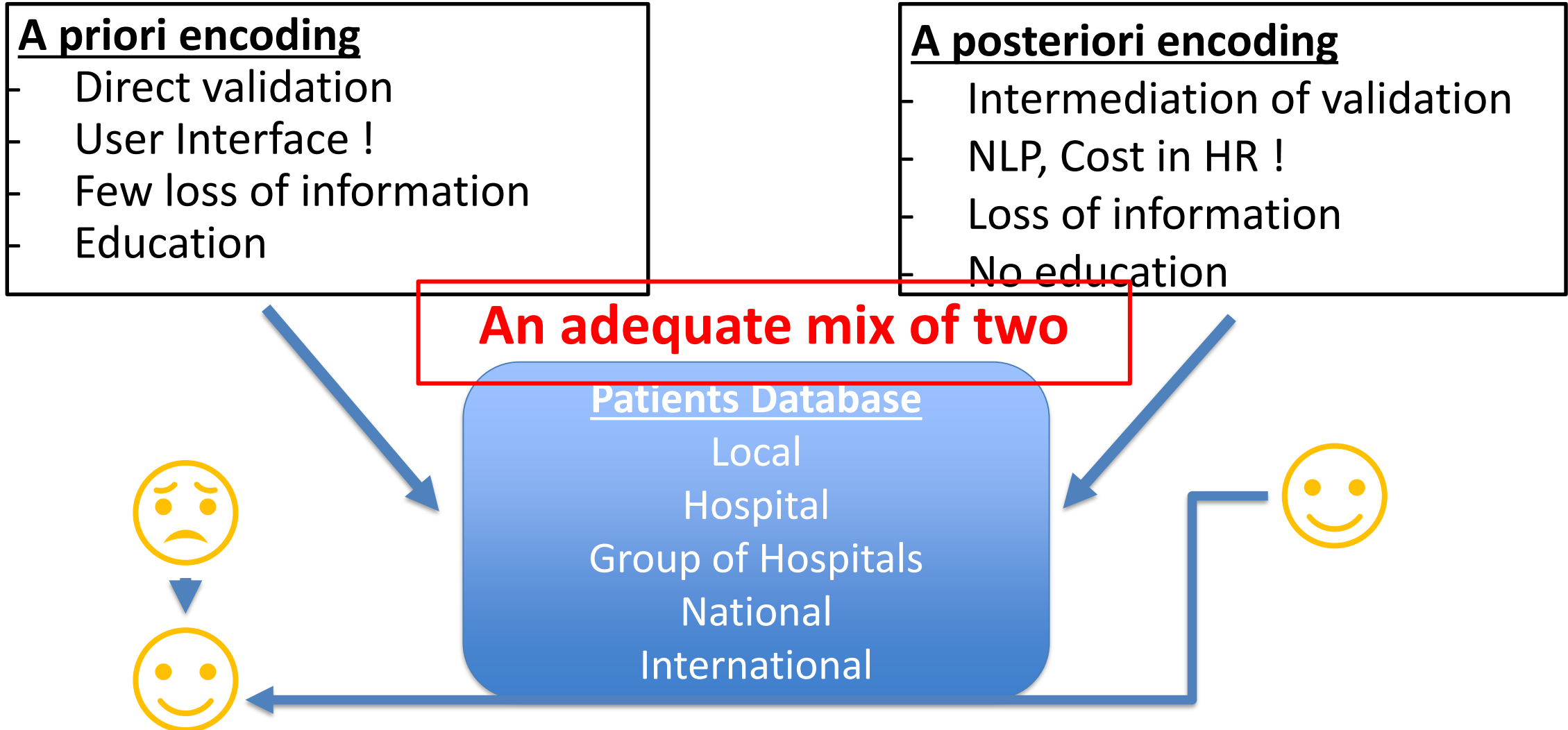
Hierarchy	Number in french (preferred terms)
Findings	36477
Procedures	19139
Qualifiers	1195
Body structure	8826
Substances	2149
Objects	1440
Organisms	24563
Social context	432
<b><i>Total Erasme extension (Be)</i></b>	<b><i>94221</i></b>
<b><i>Total SNOMED CT en USA</i></b>	<b><i>326905</i></b>
<b><i>Total Rouen extension (Fr)</i></b>	<b><i>181105</i></b>

# TERMS USAGE COMPARISON BETWEEN JUNE 2016 AND AUGUST 2017 (~ 20% OF THE EXTENSION)





- Initially they are not convinced or even refractory...
- Afterwards they become interested and even addicted...
  - Reuse of data (enter once, use many)
  - Personal database
  - Department database
  - Queries (audits or research)
    - Transversal queries (infection control...)
- Then, they participate to improvement



- Specific templates for specialties not yet deployed
- Snomed CT Terminology Server (relationships, synonyms, Refsets of specialties using constraint language)
- Implementation of MRCM for the use of postcoordination
- NLP to prepopulate patient charts from different sources

- End-Users most often do not know what SNOMED CT is and the benefits to adopt it. Information and Education are paramount.
- When implementing a newly translated subset of SNOMED CT, reactivity to end-users requests is cornerstone for adoption.
- Prepare (IT) to deploy all the functionalities of Snomed CT and interoperability of healthcare data.

- Allard Alain
- Barbiaux Robert
- Bayle Florent
- Lefever Lénaïc
- Panzer Jérémie

THANKS TO THEM !