

Using epSOS assets  
to ramp up  
SNOMED CT  
Implementation:

***The Portuguese  
Case Study on Allergies***

Anabela Santos, Licínio Kustra Mano

Portuguese Ministry of Health, Shared Services (SPMS)  
Portugal



## Summary

1. epSOS Master Value Catalogue (MVC).
2. Portuguese Catalog of Allergies and Other Adverse Reactions (CPARA).
3. Challenges in adoption and implementation of SNOMED CT.
4. Lessons learned.



## epSOS



- *Smart Open Services for European Patients.*
- Cross boarder Interoperability.
- Master Value Catalog (MVC): semantic outcome.
- MVC: SNOMED, LOINC, HL7...



# Allergies

- Increasing exponentially worldwide.
- Registry and retrieval of data vital for patient's security.

## Portugal

- Non structured registry until 2012.
- Allergies realm of the epSOS M.V.C.: SNOMED 2009.



## epSOS Master Value Catalogue (MVC)

Parent Code System:	SNOMED CT			
OID Parent Code System:	2.16.840.1.113883.6.96			
<b>epSOS Value Set Name:</b>	<b>epSOSReactionAllergy</b>			
<b>epSOS OID:</b>	<b>1.3.6.1.4.1.12559.11.10.1.3.1.42.11</b>			
website:	N/A			
version:	July 2009			
<b>Translation:</b>	<b>N/A</b>			
<b>Skill needed:</b>	<b>N/A</b>			
<b>N/A</b>				
<b>Total terms:</b>	<b>9</b>			
			<b>CPARA</b>	
<b>#</b>	<b>epSOS Code</b>	<b>English Display Name</b>	<b>Código</b>	<b>Designação</b>
1	39579001	Anaphylaxis	0002	Anafilaxia
2	200769008	Atopic dermatitis and related conditions	0004	Dermatite atópica
3	4386001	Bronchospasm	0005	Broncospasmo/Asma
4	9826008	Conjunctivitis	0010	Rinite/conjuntivite
5	43116000	Eczema	0006	Eczema/dermite de contacto
6	267804004	Pruritus NOS	0007	Prurido
7	70076002	Rhinitis	0010	Rinite/conjuntivite
8	247472004	Weal	0008	Urticária
9	41291007	Angio-oedema	0003	Angioedema



## Portuguese Catalog of Allergies and Other Adverse Reactions (CPARA)

- . First structured registry of allergies and adverse events.
- . Implemented in EHR in Portugal National Health Service.
- . Mandatory for all Public Institutions.
- . Mapping SNOMED 2009 -> National Code System.
- . 94 terms, 7 tables.
- . Broadly available for patients to register allergies (Web Portal).



# Multidisciplinary Team





# Portuguese Catalog of Allergies and Other Adverse Reactions (CPARA)

## NORMA DA DIREÇÃO-GERAL DA SAÚDE

Francisco  
Henrique  
Moura  
George

Digitally signed by  
Francisco Henrique Moura  
George  
DN: c=PT, o=Ministério da  
Saúde, ou=Direção-Geral  
da Saúde, cn=Francisco  
Henrique Moura George  
Date: 2013.03.04 14:21:11 Z

1899-2012  
112 ANOS

Direção-Geral da Saúde  
www.dgs.pt



Ministério da Saúde

NÚMERO:	002/2012
DATA:	04/07/2012
ATUALIZAÇÃO:	13/12/2012

ASSUNTO: Registo de Alergias e Reações Adversas

PALAVRAS-CHAVE: Alergias; Reações Adversas

PARA: Profissionais de Saúde do Sistema Nacional de Saúde

CONTACTOS: Departamento da Qualidade na Saúde ([dqs@dgs.pt](mailto:dqs@dgs.pt))





**... must register allergic reactions in each episode of hospitalization, consultation, emergency or any other episode provision of health care, whenever they have knowledge and especially if they arise from drug prescription.**

**This register should be structured:**

**Source Info / Date / Reaction Category / Allergen / Type of Reaction / Severity / State.**

**... should also register data on allergies and adverse reactions, occurred in the past and yet not reported.**



CPARA	Designação dos Sistemas Informação em Portugal
01	Utente
02	Médico
03	Imunoalergologista
04	Outro Profissional de Saúde

**Tabela 1 – Origem da informação**

CPARA	Designação dos Sistemas Informação em Portugal
0001	Alergia medicamentosa
0002	Intolerância medicamentosa
0003	Alergia alimentar
0004	Intolerância alimentar
0005	Reação alérgica (outra substância / agente)
0006	Intolerância (outra substância / agente)
0007	Não conhecimento de alergias

**Tabela 2 – Categoria de reação adversas**

CPARA	Designação dos Sistemas Informação em Portugal
0001	Mucosite
0002	Anafilaxia – A92
0003	Angioedema – A92 / A08 (inchaços) / S05 (inchaços generalizados)
0004	Eczema/Dermatite atópica - S87 (dermatite/eczema atópico)
0005	Dificuldade respiratória/Broncospasmo/Asma - R02 (dificuldade respiratória/dispneia) / R96 (asma)
0006	Eczema/dermatite de contacto – S88 (dermatite contacto/alérgica)
0007	Prurido – S02 (prurido)
0008	Urticária – S98 (urticária)
0009	Reações Gastrointestinais (vómitos/diarreia) – D01 (dor) / D10 (vómitos) / D11 (diarreia)
0010	Rinite/conjuntivite – R97 (rinite) / F71 (conjuntivite alérgica) / R07 (espirros/congestão nasal)
0011	Morte (A96)
0099	Outra



**Tabela 5 – Tipos de reação alérgica**





# Public Hospitals



-  Sedes da ARS
-  Hospitais EPE

## Região Norte

- IPOFG-Porto
- Centro Hospitalar do Porto
- Hospital St. Maria Maior - Barcelos
- Centro Hospitalar do Nordeste
- Centro Hospitalar do Alto Ave
- Unidade Local Saúde de Matosinhos
- Centro Hospitalar do Tâmega e Sousa
- Centro Hospitalar do Alto Minho
- Centro Hospitalar do Médio Ave
- Centro Hosp. Trás-os-Montes A. Douro
- Hospital de São João - Porto

## Região Centro

- Hospital São Sebastião - Sta. M Feira
- IPOFG-Coimbra
- Hospital Infante D. Pedro - Aveiro
- Centro Hosp. Cova da Beira - Covilhã
- Hospital Distrital da Figueira da Foz
- Hospital Santo André - Leiria
- Hospital São Teotónio - Viseu
- Centro Hospitalar de Coimbra

## Região de Lisboa e Vale do tejo

- IPOFG-Lisboa
- Centro Hospitalar de Lisboa Central
- Hospital Pulido Valente - Lisboa
- Centro Hospitalar de Lisboa Ocidental
- Centro Hosp. do Médio Tejo - Tomar
- Hospital Garcia de Orta - Almada
- Hospital N. Sra. do Rosário - Barreiro
- Hospital Distrital de Santarém
- Centro Hospitalar de Setúbal
- Hospital de Santa Maria - Lisboa

## Região Alentejo

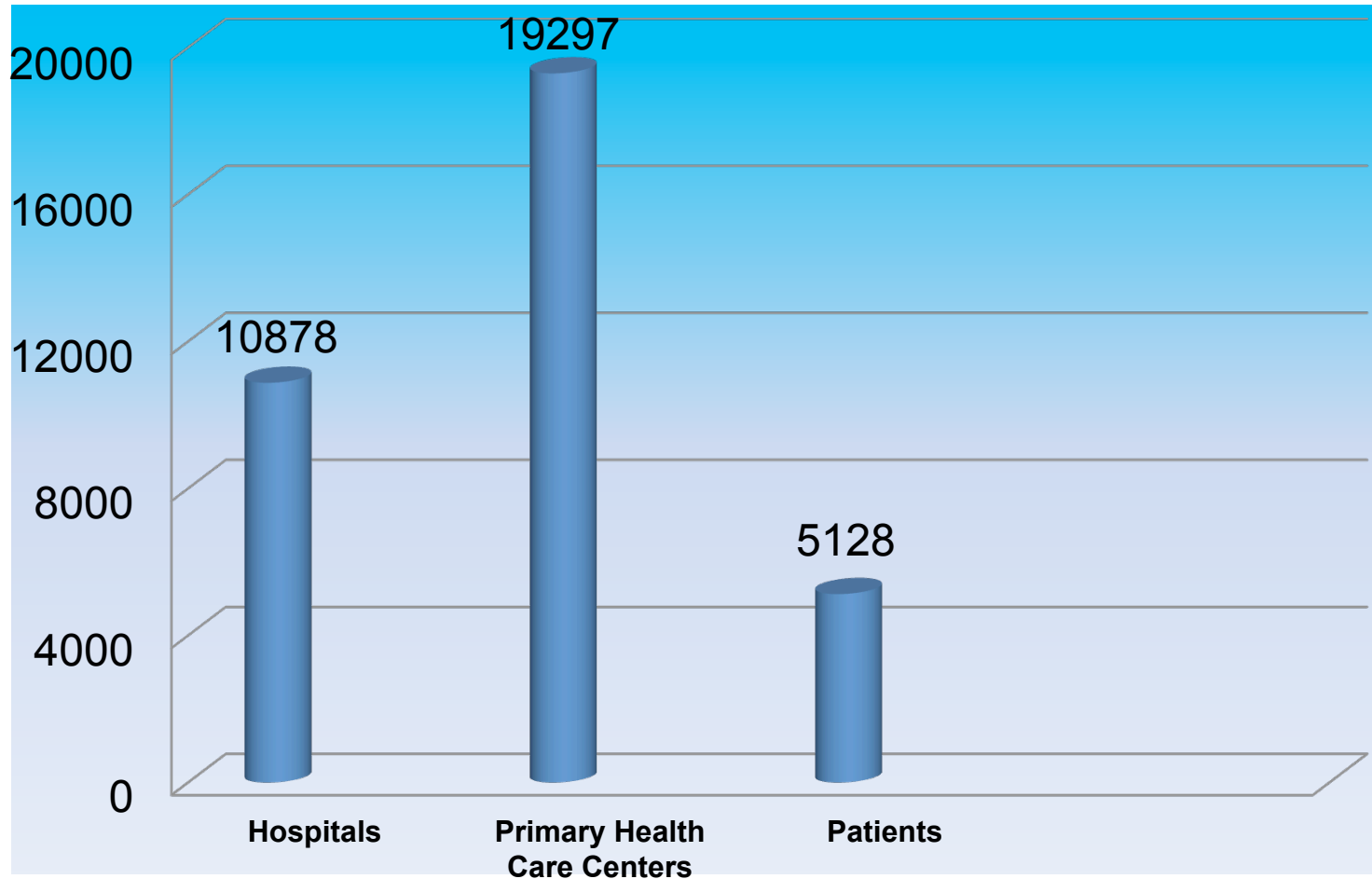
- Centro Hospitalar do Baixo Alentejo
- Unidade Local Saúde do Norte Alentejo
- Hospital do Espírito Santo de Évora

## Região Algarve

- Centro Hosp. Barlavento Algarvio - Port.

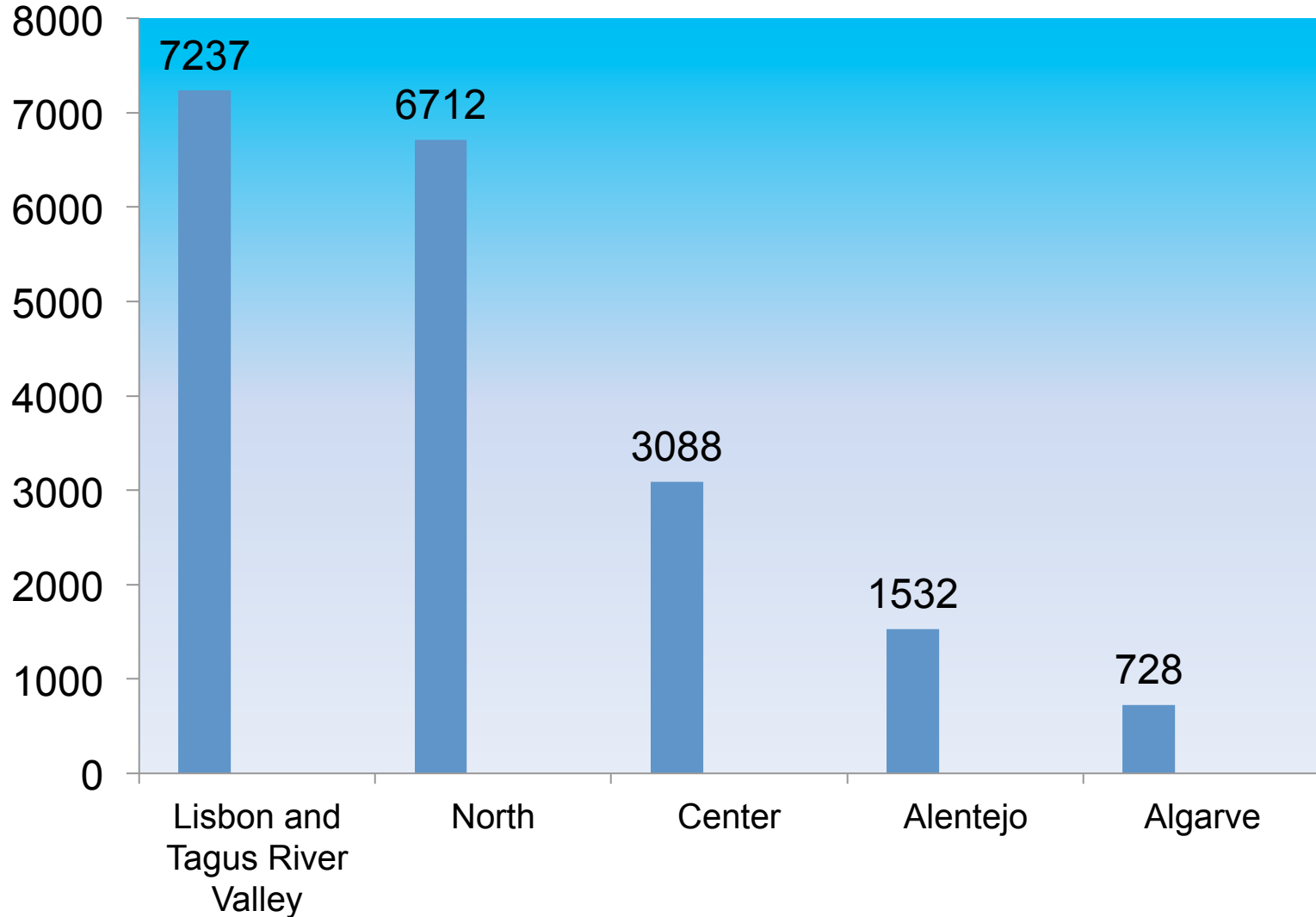


## Total of Registries (2013-2014)



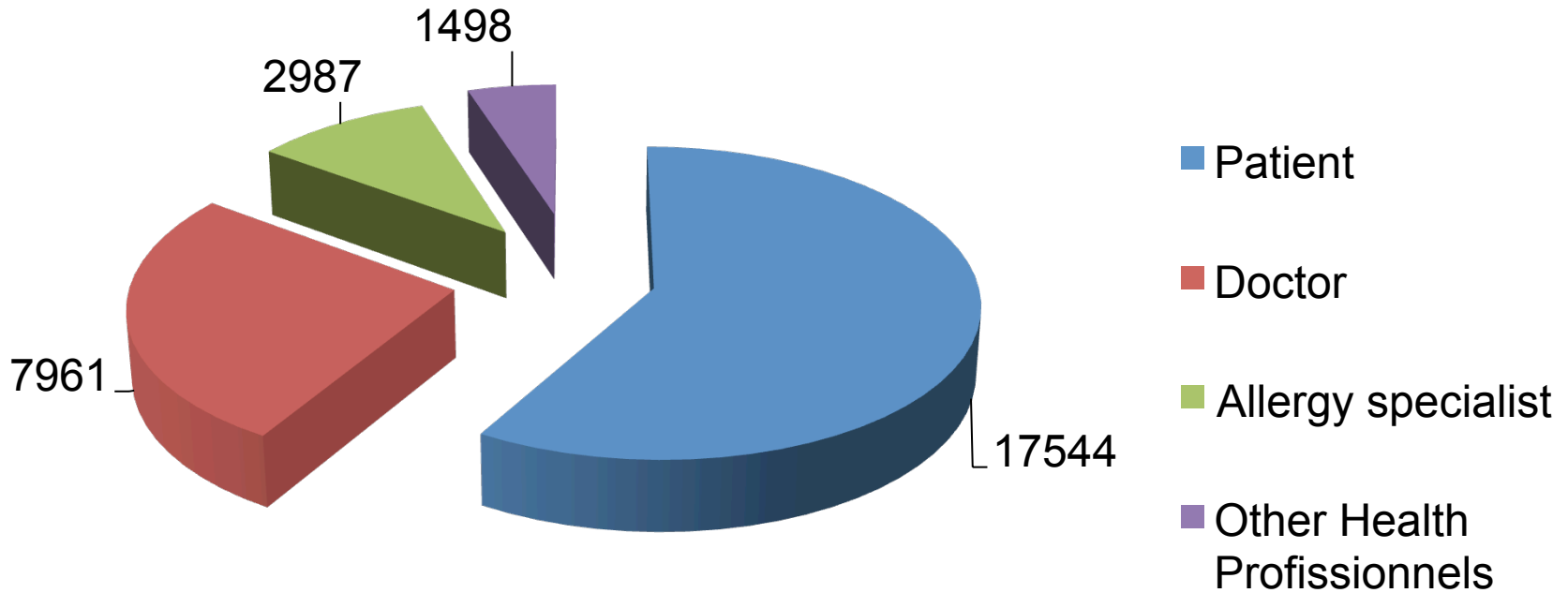


## Primary Health Care Groupings



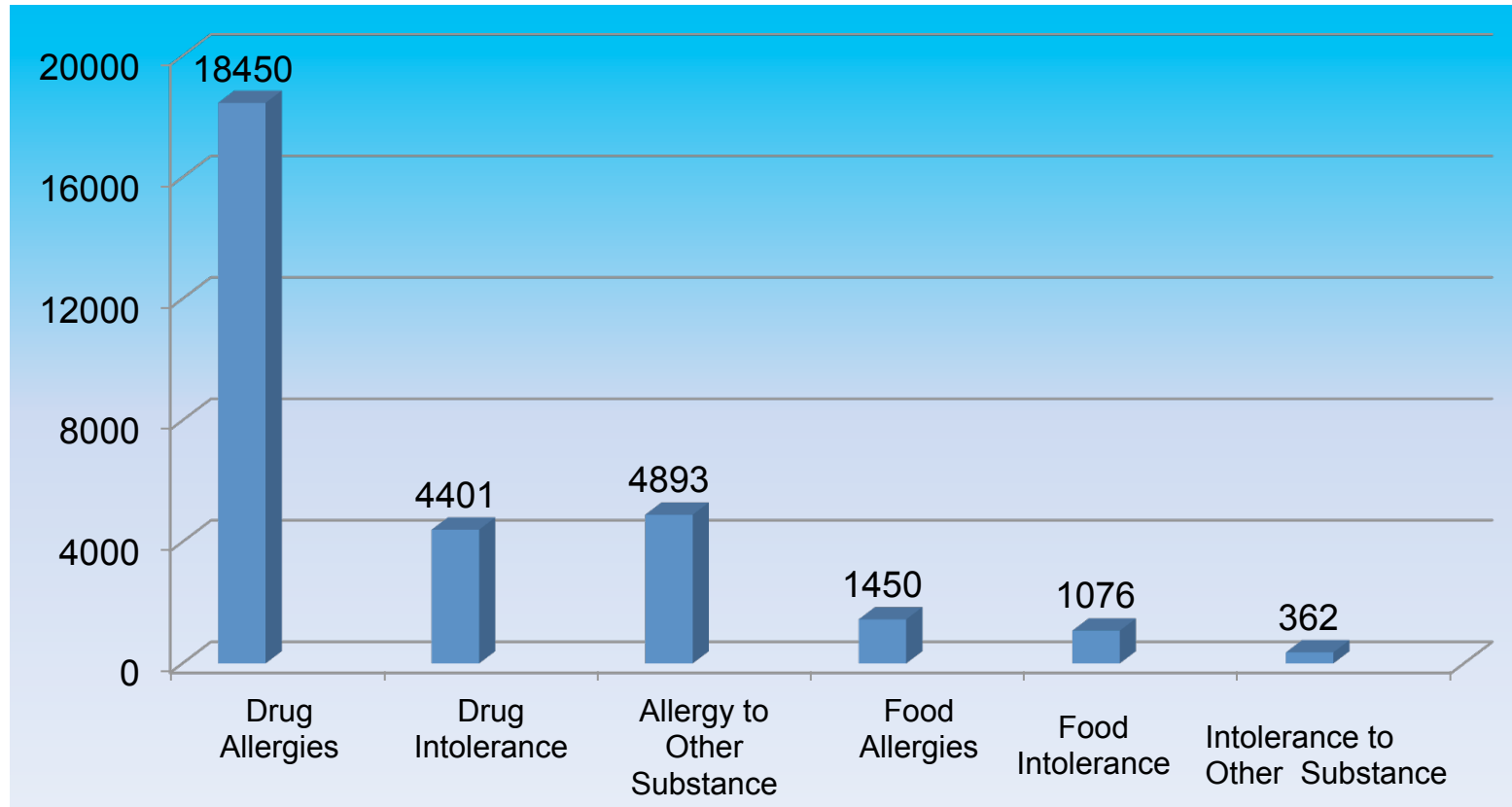


## Source Info





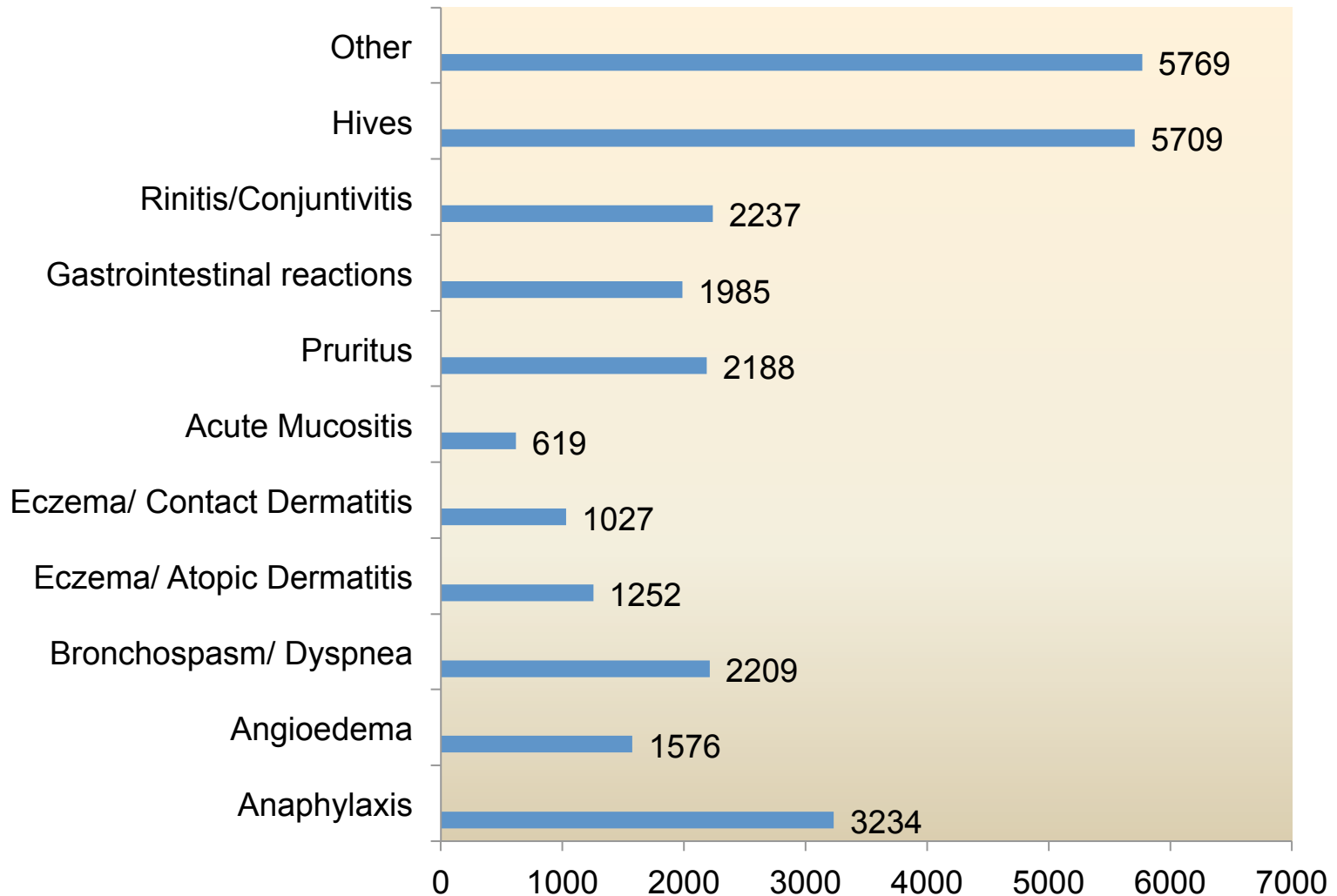
## Category of Reaction





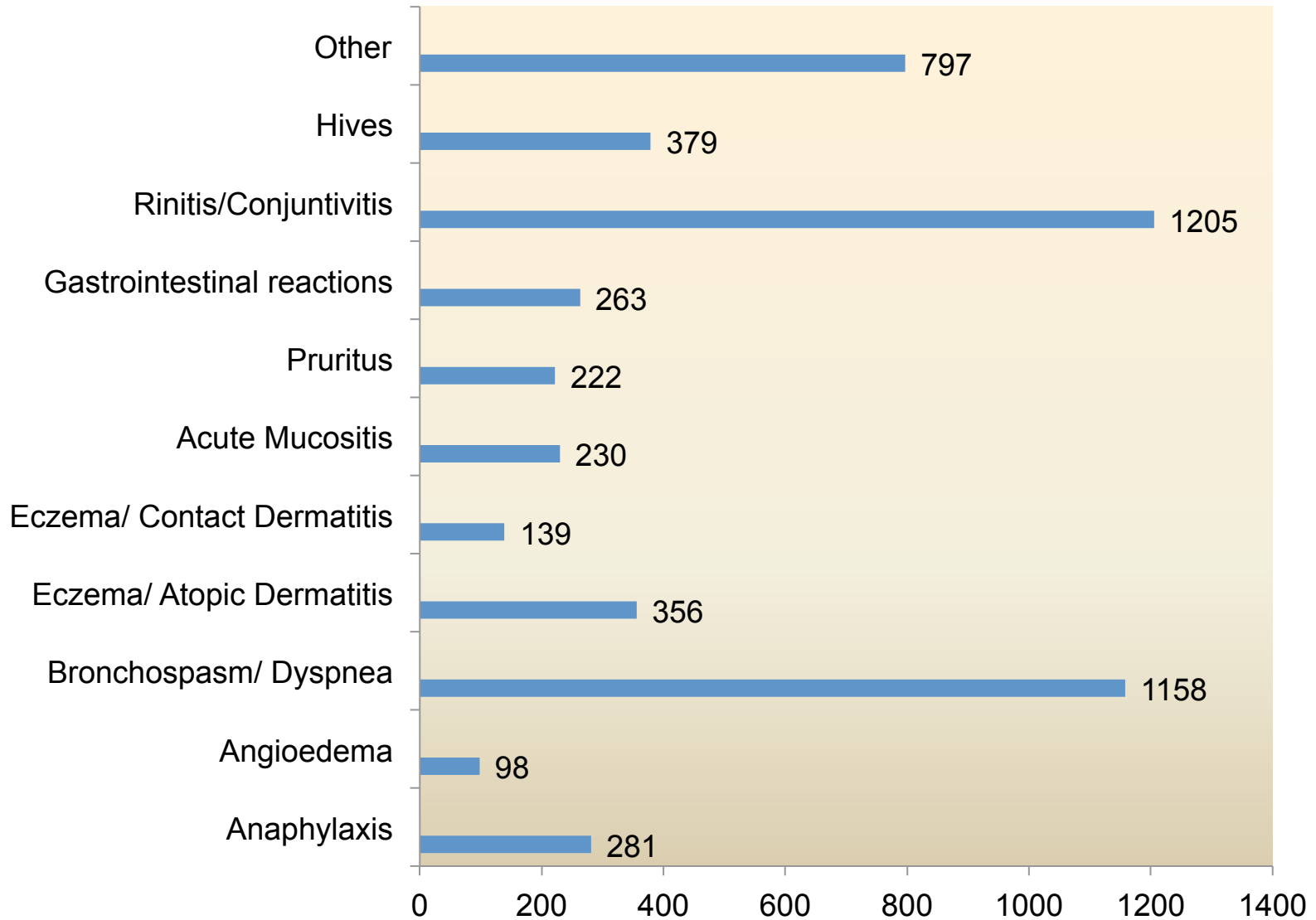


## Type of reaction (Institutions)



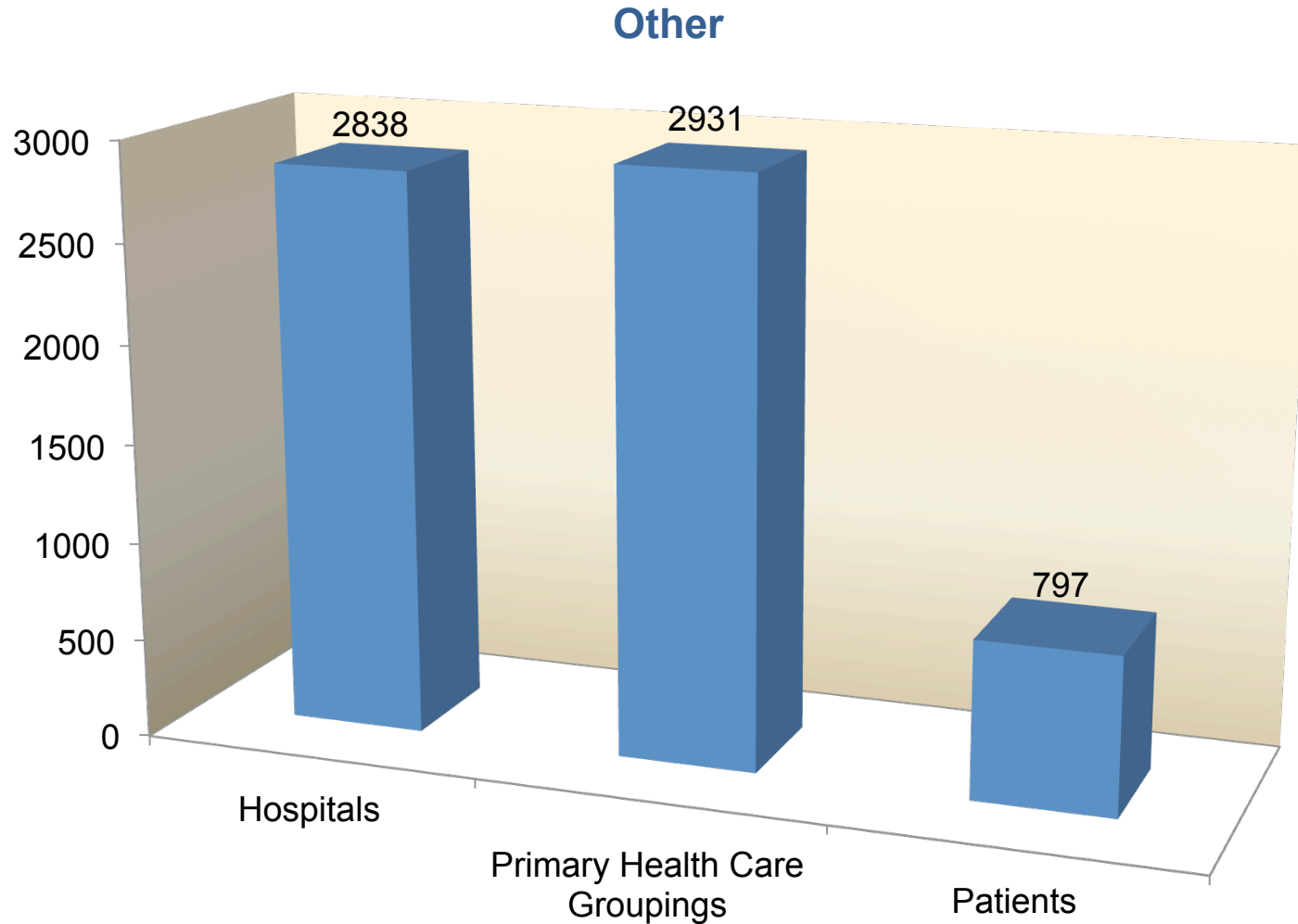


## Type of reaction (Patients)



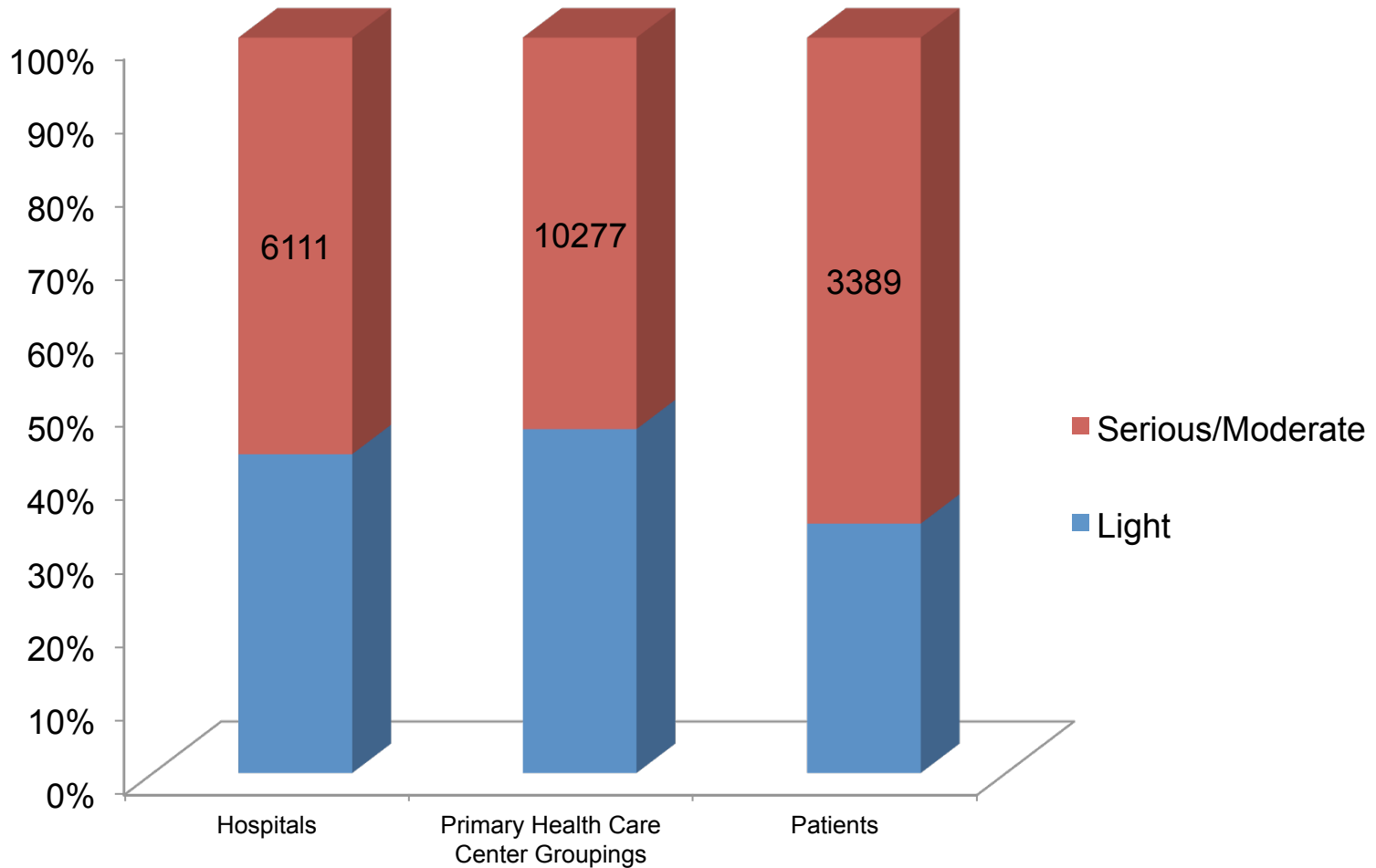


## Other Type of Reaction





## Gravity





# Portuguese Catalog of Allergies and Other Adverse Reactions (CPARA)

## Update of the Catalog - 2014

- . Bibliographic research on allergies.
- . Understanding the Model of Information.
- . Engaging the team responsible.
- . Involving other partners: SPAIC, DGS.

### Outcome....

- . Maintaining the tables.
- . Mapping 2009 SNOMED codes to SNOMED 2014 July version codes.
- . Updating Portuguese translation.
- . Expanding the number of terms.
- . Portuguese translation of new terms added.
- . National release of CPARA v3.0: November 2014



## Implementation

- SPMS adjusted the informatic nursing (SAPE) and clinical (SAM) apps to include the allergies registry in 2012.
- In April 2012 the catalogue was delivered to all Public Institutions.
- An alert system was applied, both in SAM and SAPE, so the health professionals knew where to register allergies, using the catalogue.
- CPARA was also implemented in the *ePrescription System*, so the doctors could receive an allergies alert, during prescription.



*Challenges...*



# National status quo

- Use of classifications to collect clinical knowledge
- Classifications adoption motivated by interests beyond health care
- Use of several classifications
- Lack of semantic interoperability between classifications

## Classifications

ICD-9-CM

ICD-10-CM/PCS

ICD-O-3

ICPC-2

CIPE

LOINC

CPARA





- Other classification systems already in place.
- SNOMED CT largely unknown for most stakeholders, including clinicians.



- Adjustments in the different Information Systems.
- Progressive learning by all the stakeholders involved (doctors, nurses, IT's...).
- Long term engagement.



## Lessons learned

- Refsets are dynamic: update is vital.
- Provide computable expressions of the domain content model
- Strategy to engage stakeholders in adoption and implementation.
- Establish continuous conformance assessment mechanism.



*meaningful sharing*



**SPMS**<sub>EPE</sub>

Serviços Partilhados do Ministério da Saúde



**THANK YOU FOR YOUR  
ATTENTION**