

# Burden of occupational diseases treated in the Spanish National Health System

Consol Serra



Hospital del Mar Medical Research Institute (IMIM) / CiSAL-Centre for Research in Occupational Health, University Pompeu Fabra / Occupational Health Service, Parc de Salut Mar.

Barcelona, Spain.

CIBER in Epidemiology and Public Health (CIBERESP), Spain.

[consol.serra@upf.edu](mailto:consol.serra@upf.edu)

# Recognition of occupational diseases in Spain

## Diseases caused by work

### Occupational diseases

- Legally recognised
- Official list of OD<sup>1</sup>

### Work-related diseases (WRD)

- Strong scientific evidence of work as its cause

1, RD 1299/2006, Cuadro de enfermedades profesionales en el sistema de la SS y se establecen criterios para su notificación y registro.

#### ANEXO 1

##### Cuadro de enfermedades profesionales

- Grupo 1: Enfermedades profesionales causadas por agentes químicos.  
Grupo 2: Enfermedades profesionales causadas por agentes físicos.  
Grupo 3: Enfermedades profesionales causadas por agentes biológicos.  
Grupo 4: Enfermedades profesionales causadas por inhalación de sustancias y no comprendidas en otros apartados.  
Grupo 5: Enfermedades profesionales de la piel causadas por sustancias comprendidas en alguno de los otros apartados.  
Grupo 6: Enfermedades profesionales causadas por agentes carcinógenos.

#### ANEXO 1

##### Cuadro de enfermedades profesionales (codificación)

| Grupo | Agente | Sub-agente | Actividad | Código | Enfermedades profesionales con la relación de las principales actividades capaces de producir las |
|-------|--------|------------|-----------|--------|---|
| 1     |        |            |           |        | Enfermedades profesionales causadas por agentes químicos  |
|       | A      |            |           |        | METALES   |

Página 4

#### BOLETÍN OFICIAL DEL ESTADO LEGISLACIÓN CONSOLIDADA

| Grupo | Agente | Sub-agente | Actividad | Código | Enfermedades profesionales con la relación de las principales actividades capaces de producir las                                      |
|-------|--------|------------|-----------|--------|--|
|       |        | 01         |           |        | Arsénico y sus compuestos  |
|       |        |            |           |        | Preparación, empleo y manipulación del arsénico y sus compuestos, y especialmente:   |
|       |        | 01         | 1A0101    |        | Minería del arsénico, fundición de cobre, producción y uso de pesticidas arsenicales, herbicidas e insecticidas, producción de vidrio. |
|       |        | 02         | 1A0102    |        | Calcinación, fundición y refinado de minerales arseníferos.  |
|       |        | 03         | 1A0103    |        | Fabricación y empleo de insecticidas y antipulgicidas que contengan compuestos de arsénico.  |
|       |        | 04         | 1A0104    |        | Fabricación y empleo de colorantes y pinturas que contengan compuestos de arsénico.  |

22169  
MINISTERIO DE TRABAJO  
Y ASUNTOS SOCIALES  
REAL DECRETO 1299/2006, de 10 de noviembre, por el que se aprueba el cuadro de enfermedades profesionales en el sistema de la Seguridad Social y se establecen criterios para su notificación y registro.

# Recognition of occupational diseases in Spain

Three reasons:

- 1) **Increased paid benefits for the patient:** 80% of salary if OD vs. 60% otherwise, and other possible benefits.
- 2) **Sentinel case detection** to suspect other possible cases and adopt preventive measures. Epidemiological surveillance.
- 3) **Balance of health care costs** between the National Health System and the Social Security System.

# Recognition of occupational diseases in Spain

## Health care systems in Spain

### National Health System

- **Financing:** taxes
- **Management:** Autonomous communities
- **Health care:**
  - ✓ Non-work related diseases
  - ✓ Non work related injuries
- **Coverage:** all residents in Spain.

### Social Security System

- **Financing:** Social Security
- **Management:** Insurance companies (*Mutuas*) Social Security collaborators.
- **Health care:**
  - ✓ Occupational disease
  - ✓ Occupational injuries
- **Economic benefits:**
  - ✓ Occupational and non-work related diseases
  - ✓ Occupational and non-work related injuries
- **Coverage:** affiliated to certain Social Security schemes.

# Secular problem: Underreporting and recognition of OD in Spain

- Compared to other countries (Finland, Canada, other), only **30%** of WRD are reported in Spain (29.000 vs. 93.000 estimated cases).

García AM, Gadea R. Arch Prev Riesgos Labor. 2004;7:3-8.

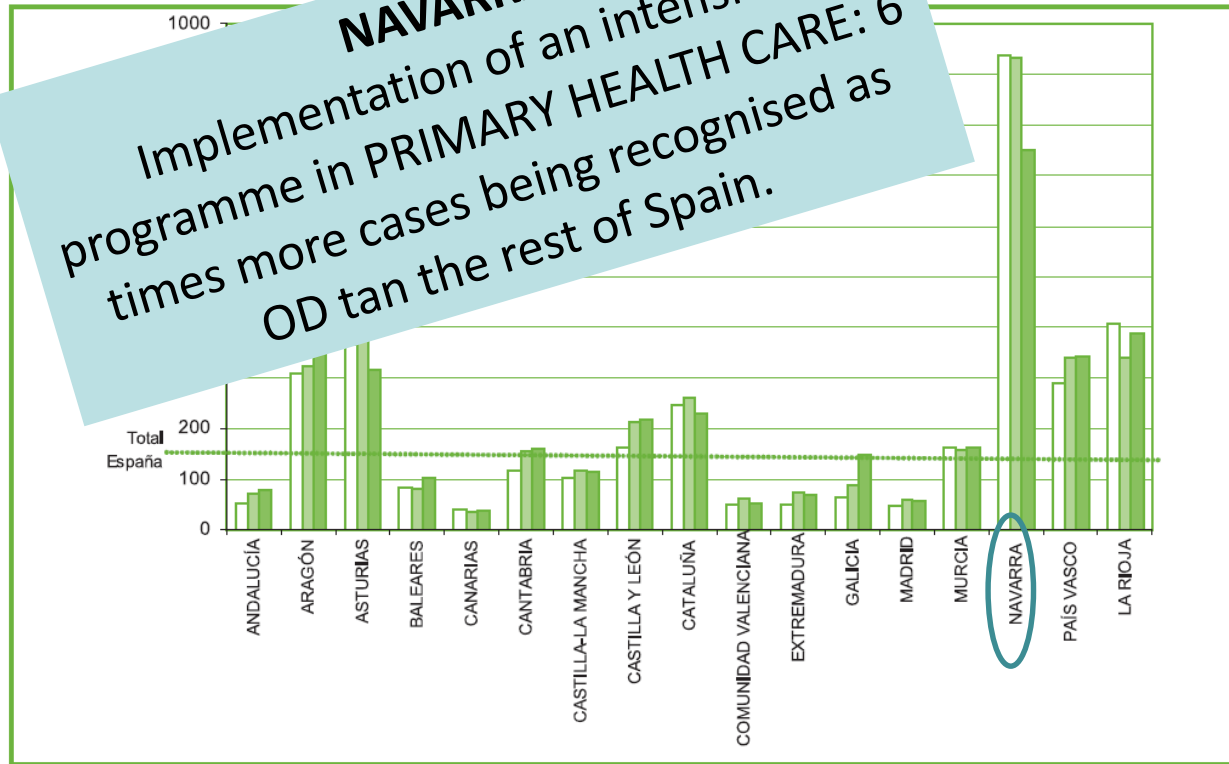
- Cancer: incidence and scientific evidence (attributable fraction, occupation)

|              | Population<br>(millions) | New<br>cancers/year | Estimated occupational<br>cancer cases | Cancers cases<br>recognised as OD |                   |
|--------------|--------------------------|---------------------|--|-----------------------------------|-------------------|
| <b>Spain</b> | <b>41,8</b>              | <b>161.748</b>      | <b>6.470-13.487</b>                    | <b>14</b>                         | <b>0,10-0,22%</b> |
| France       | 57.3                     | 250,000             | 10,000                                 | 900                               | 9.0%              |
| UK           | 57.5                     | 241,875             | 9,670                                  | 806                               | 8.3%              |
| Germany      | 79.1                     | 367,641             | 14,700                                 | 1.889                             | 12.9%             |
| Belgium      | 10.2                     | 46,339              | 1,850                                  | 149                               | 8.1%              |
| Denmark      | 5.1                      | 29,657              | 1,180                                  | 79                                | 6.7%              |
| Finland      | 5.2                      | 22,201              | 890                                    | 110                               | 12.4%             |

Kogevinas M, Castaño-Vinyals G, Rodríguez M, Tardón A, Serra C. Arch Prev Riesgos Labor. 2008;11:180-7.

# Enfermedades profesionales

Figura 4.15 Incidencia de enfermedades profesionales declaradas por Comunidades Autónomas en 2003 y 2005.



Fuente: Anuario de Estadísticas Laborales y de Asuntos Sociales. 2001, 2003 y 2005.

Benavides FG, coordinator. Informe de Salud laboral. España, 2006. Barcelona: Observatorio de Salud Laboral; 2007.

# Recognition of occupational diseases

---

## ... and hospitals?...

Some experiences in other countries<sup>1</sup>,  
but very scarce/partial, if any in Spain

<sup>1</sup> Rosenstock 1982; Orris 1982; Teichman 1989-1990;  
Langard 2011, Teichman 1989; Miglietta 2007.

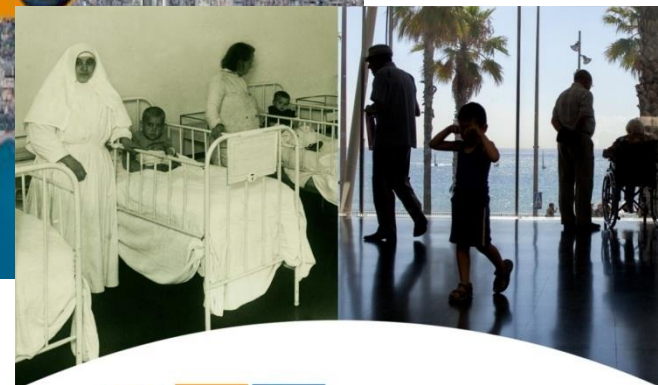
# Parc de Salut MAR



1,038 Beds

350,753 Visits

3,143 Staff (40h)



*Nous reptes,  
nous horizons*

*“New challenges, new horizons”*



# OCCUPATIONAL DISEASE UNIT – CiSAL UPF (ODU)

Universitat  
Pompeu Fabra  
Barcelona



2009



- Unique and innovative in Spain (June 2010), by occupational physicians.
- **Aims:** To identify, evaluate and report suspected cases of OD among PSMAR patients for their official recognition as OD by the Social Security system, based on the collaboration among clinical and occupational health services, and patients.
- Clinical and epidemiological research. Training of occupational physicians and nurses, and other specialists.

# OCCUPATIONAL DISEASE UNIT PSMAR/UPF: the team

- Consol Serra, coordination, OP OHS PSMAR and CiSAL UPF.
- George L. Delclos, consultant OP, University of Texas School of Public Health and CiSAL UPF.
- José M Ramada, OP OHS, PSMAR and CiSAL UPF.
- Mònica Ubalde, post-doc, CiSAL UPF, collaborator 2015-
- Fernando G. Benavides, Prof. PH, CiSAL UPF
- Dinora Bernal, pre-doc, RN, CiSAL UPF, collaborator
- Rosabel Garrido, RN, MSc student
- Mery Valinho, MsC Public Health, UPF
- Sergio Vargas-Prada, OP, CiSAL UPF, collaborator
- Trainees Occupational Medicine, Training Unit UPF

**Hospital clinical services**

- Dermatology
- Ophthalmology
- Oncology
- Otorhinolaryngology
- Pneumology
- Radiotherapy
- Rehabilitation
- Traumatology
- Urology

**Suspected OD, case:**

- ✓ Clinical diagnosis
- ✓ Occupation

**Referral to**  
"Occupational Diseases"

**OCCUPATIONAL  
DISEASE UNIT (ODU)**

**Predictive  
value (+) =  
39.1%**

*Ramada JM  
et al. 2014*

**Initial case assessment:**

- ✓ review of clinical record
- ✓ clinical-occupational visit

Collection of additional clinical and occupational exposure information

**Confirmation or not of OD:**

- ✓ **Systematic, standardised causation report**

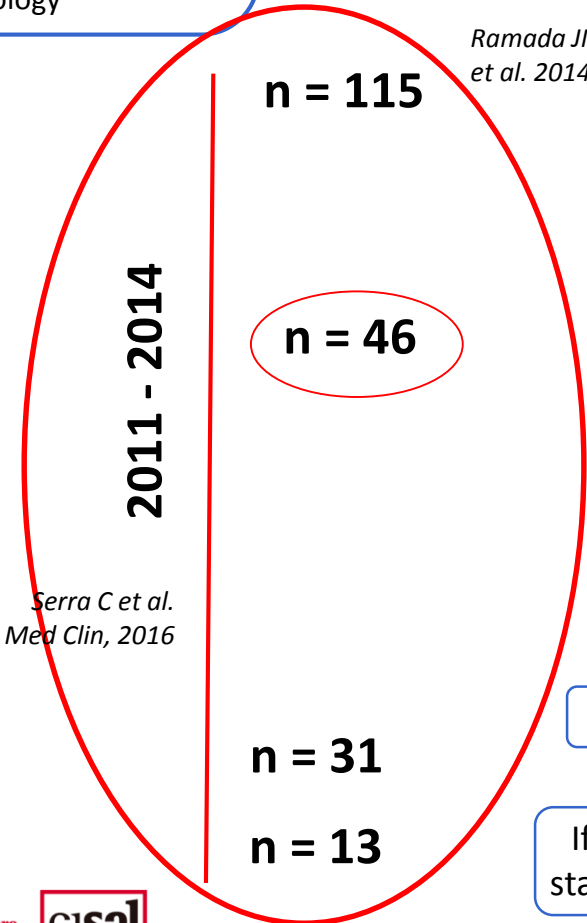
**Communication and delivery of the  
causation report (3 copies)**

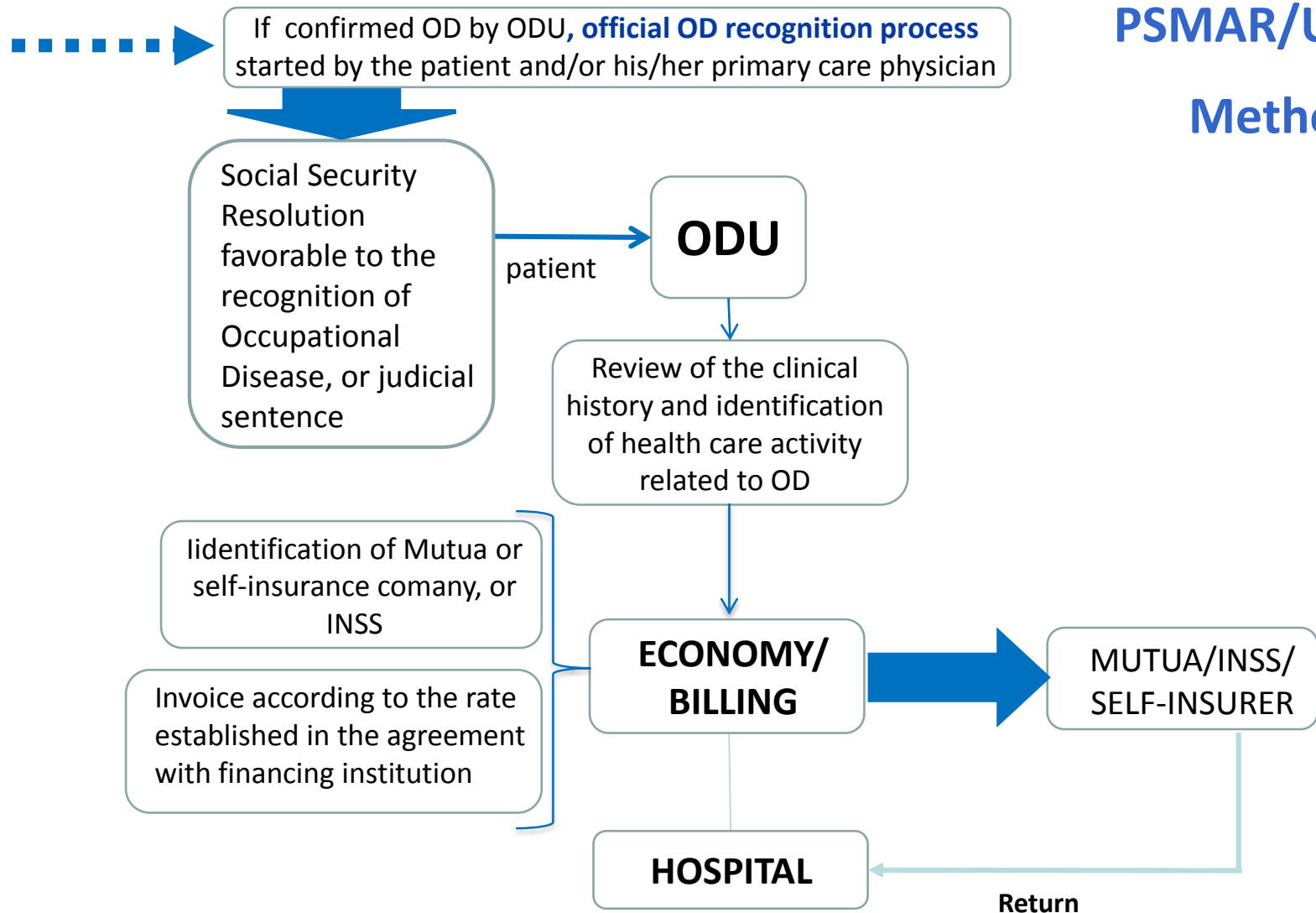
Patient

Primary care physician

Referring physician  
(clinical record)

**If confirmed OD by ODU, official OD recognition process started by the patient and/or his/her primary care physician**





# Characteristics of confirmed cases of suspected OD.

## ODU PSMAR/UPF, Barcelona, 2010-2014

| Variables                |                   | N         | (%)          |
|--------------------------|-------------------|-----------|--------------|
| • Age (years)            | Mean (DE)         | 58        | 12.0         |
| • Sex                    | Men               | 37        | 80.4         |
|                          | Women             | 9         | 19.6         |
| • Diagnostic group       | Musculoskeletal   | 11        | 23.9         |
|                          | Cancer            | 10        | 21.7         |
|                          | Hearing loss      | 20        | 43.5         |
|                          | Dermatosis        | 5         | 10.9         |
| • OD recognition process | Initiated         | 31        | 67.4         |
|                          | Non initiated     | 10        | 21.7         |
|                          | Lost to follow-up | 5         | 10.9         |
| <b>TOTAL</b>             |                   | <b>46</b> | <b>100.0</b> |

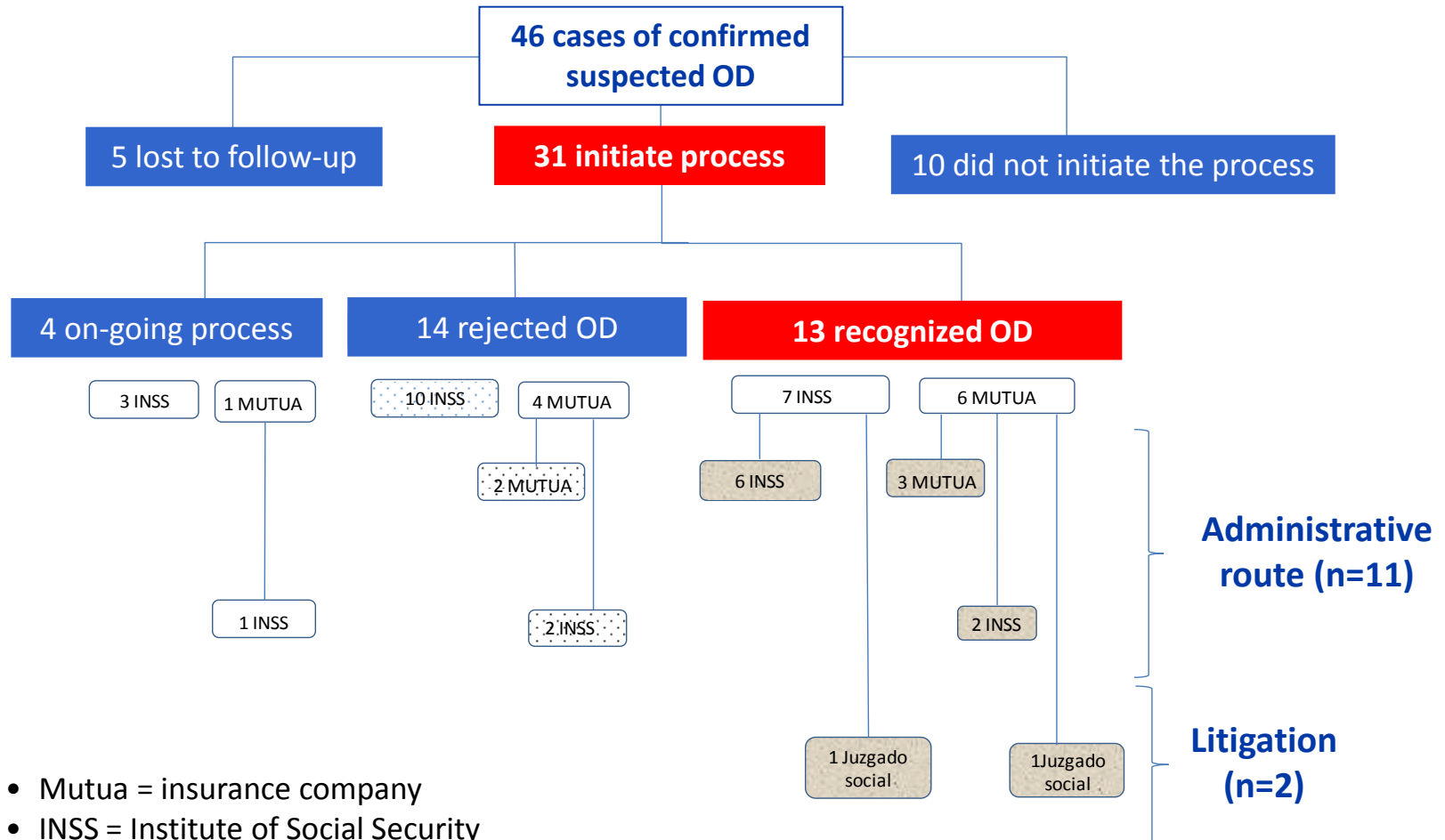
Serra C, Ramada JM, Garrido R, Ubalde-Lopez M, Delclos J, Benavides FG. Occupational diseases treated at Parc de Salut Mar (Barcelona), 2010-2014. Med Clin (Barc). 2016

# Follow-up...

| Diagnosis group | N         | OD<br>recognized | OD not<br>recognized | Ongoing<br>process |
|-----------------|-----------|------------------|----------------------|--------------------|
|                 |           | n (%)            | n (%)                | n (%)              |
| Musculoskeletal | 9         | 2 (33.3)         | 7 (77.7)             | -                  |
| Cancer          | 8         | 5 (62.5)         | 1 (11.1)             | 2 (22.2)           |
| Hearing loss    | 10        | 3 (30.0)         | 6 (60.0)             | 1 (10.0)           |
| Dermatosis      | 4         | 3 (75.0)         | -                    | 1 (25.0)           |
| <b>TOTAL</b>    | <b>31</b> | <b>13 (41.9)</b> | <b>14 (45.2)</b>     | <b>4 (12.9)</b>    |

Serra C, Ramada JM, Garrido R, Ubalde-Lopez M, Delclos J, Benavides FG. Occupational diseases treated at Parc de Salut Mar (Barcelona), 2010-2014. Med Clin (Barc). 2016

# Follow-up...



- Mutua = insurance company
- INSS = Institute of Social Security

Serra C, Ramada JM, Garrido R, Ubalde-Lopez M, Delclos J, Benavides FG. Occupational diseases treated at Parc de Salut Mar (Barcelona), 2010-2014. Med Clin (Barc). 2016

# Economic burden for PSMAR

40/46 cases of  
confirmed  
suspected OD  
(2010-14)

- **Clinical records:** discharges, outpatients visits, day care and/or emergencies, diagnostic tests, surgical procedures, drugs, etc. (551 clinical log registries) Revision by independent pairs.
- **Economic data:** real cost and charges.

|                   | Total COST (€)    | Mean cost per case |
|-------------------|-------------------|--------------------|
| • Musculoskeletal | 22,883.70         | 2,080.34           |
| • Cancer          | 152,237.60        | 15,223.76          |
| • Hearing loss    | 473.80            | 33.84              |
| • Dermatoses      | 5,477.30          | 1,095.46           |
| <b>TOTAL</b>      | <b>181,072.40</b> | <b>4,526.81</b>    |

# CONCLUSIONS

---

- The PSMAR/UPF Occupational Disease Unit is a pilot experience that has proven to be useful and effective.
- Challenge: to expand this approach to the identification and management of occupational diseases to other hospitals of the Spanish National Health Service. The CEPS project.

CONVOCATORIA DE AYUDAS DE PROYECTOS DE INVESTIGACIÓN EN SALUD  
MEMORIA DE SOLICITUD

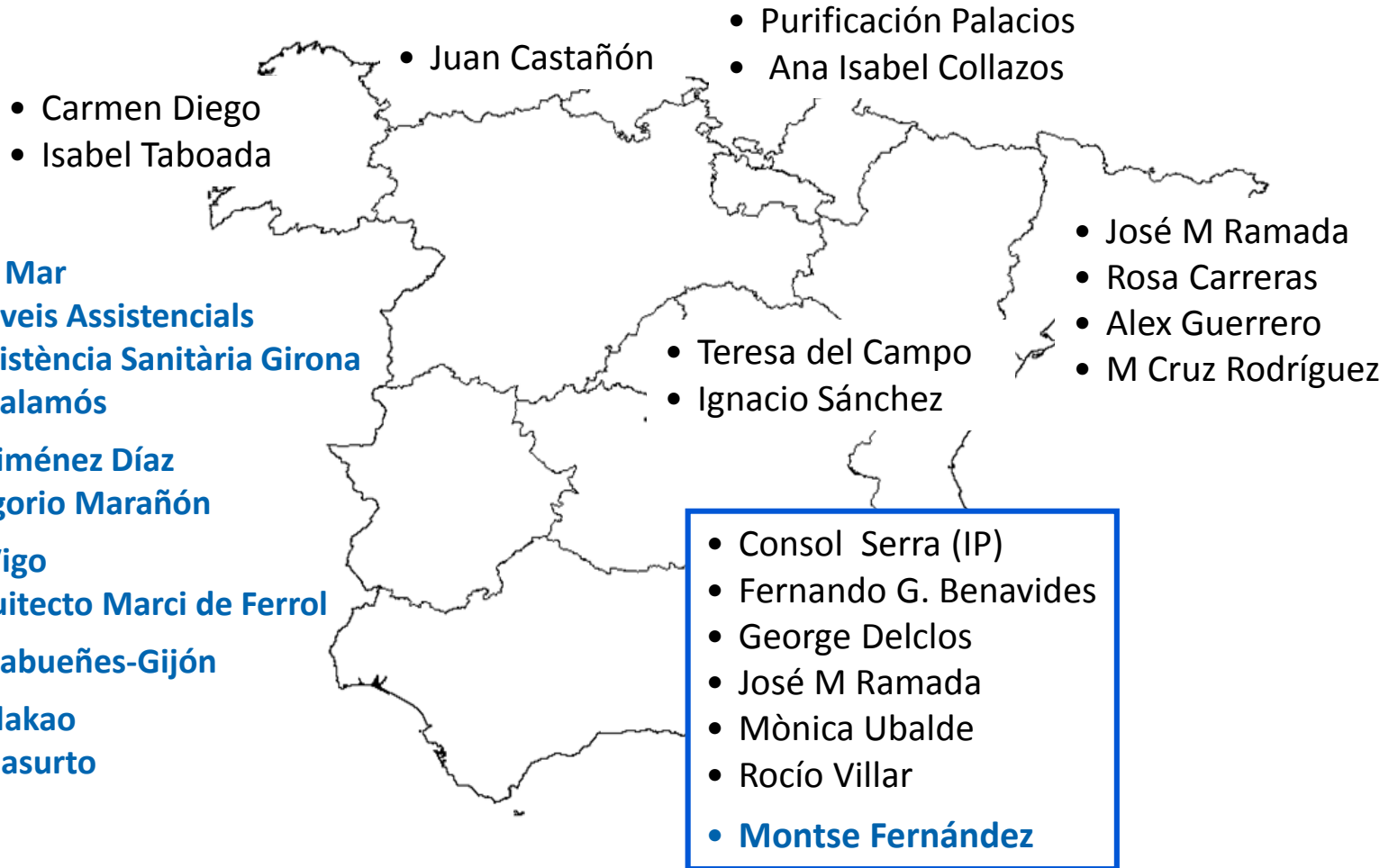
Expediente Nº  
PI16/00061

TITULO: PROYECTO CEPS: CARGA DE LA ENFERMEDAD PROFESIONAL ATENDIDA EN EL SISTEMA NACIONAL DE SALUD.

## HYPOTHESES

- 1) Secular under-reporting and recognition of occupational diseases in Spain is an important health care and economic burden for hospitals of the National Health System.
- 2) Hospitals of the National Health System can contribute significantly to the identification, reporting and recognition of OD, by means of a structured methodology and common protocols for the systematic evaluation of suspected cases of OD.

# CEPS RESEARCH TEAM



# CEPS project: OBJECTIVES

**To contribute to the identification and systematic assessment of the burden of occupational disease (EP) treated in hospitals of the National Health System and to evaluate the health care and economic impact for these hospitals.**

- 1) To estimate the prevalence and underreporting of OD in the participating hospital populations;
- 2) To identify the possible causes of OD underreporting in such populations;
- 3) To evaluate the economic costs of OD treated at the participating hospitals;
- 4) To develop two guidelines to assist patients/workers, health professionals (clinicians and occupational physicians), lawyers and unions in the process of recognition of OD by the Social Security system.

# CEPS project: METHODOLOGY

- **Design:** Prospective study of a series of suspected occupational disease (OD) cases in a sample of Spanish hospitals.
- **Study subjects:** suspected cases of OD in the 11 participating hospitals of 5 CCAA (regions).
- **Definition of suspected case of OD:** Patient receiving care at one of the 11 participating hospitals that, in the clinical judgment of the physician, raises a suspicion of OD, based on her/his clinical diagnosis and the information requested from the patient about her/his occupation.

# CEPS project: METHODOLOGY

| Hospital                                      | Admissions/<br>year | Estimated no.<br>of cases* |
|---|---------------------|----------------------------|
| Parc de Salut Mar                             | 20.918              | 42                         |
| Hospital de Vigo                              | 41.062              | 82                         |
| Hospital de Basurto                           | 38.000              | 76                         |
| Hospital Universitario Fundación Jiménez Díaz | 32.043              | 64                         |
| Hospital de Galdakao                          | 27.152              | 55                         |
| Hospital Gregorio Marañón                     | 48.838              | 98                         |
| Hospital de Cabueñes                          | 18.986              | 38                         |
| Hospital Arquitecto Marci de Ferrol           | 12.036              | 24                         |
| Hospital de Palamós                           | 10.491              | 21                         |
| Badalona Serveis Assistencials                | 9.500               | 19                         |
| Institut d'Assistència Sanitària de Girona    | 6.813               | 14                         |
| <b>TOTAL</b>                                  | <b>265.839</b>      | <b>533</b>                 |

\* Calculated for a ratio of 2 cases/1,000 hospital admissions.

# CEPS project: ORGANIZATION

## WP1: Coordination (years 1-3)

- Creation and full development of ODU in each hospital, common methodology
- Identification, evaluation and follow up of suspected cases undergoing process of OD recognition, common protocols.
- Digital platform, Scientific Committee, International Committee.

## WP2: Evaluation (years 2-3)

- Causes of under-reporting: scoping review, qualitative analysis (focus groups).
- Analysis of under-reporting and economic burden

## WP3: Dissemination and transference (years 1-3)

- Development of 2 guidelines
- Dissemination on results and web-based digital platform