European Network of Cancer Registries

European Commission
Joint Research Centre

ENCR Workshop on Software and AI tools for cancer registries

18 and 25 October 2024, online

VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION

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RCM Registro de Cáncer de Murcia

Región de Murcia
Consejería de Salud
Dirección General de Salud Pública y Adicciones

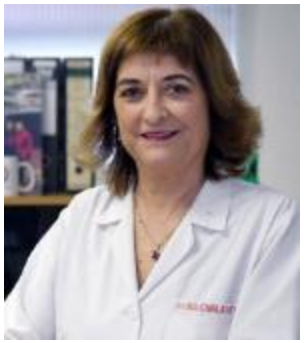
Cofinanciado por la Unión Europea

IMIB Instituto Murciano de Investigación Biosanitaria Pascual Parrilla

ciber ESP
CENTRO DE INVESTIGACIÓN BIOMÉDICA EN RED
Epidemiología y Salud Pública

UNIVERSIDAD DE MURCIA

VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION



Mª Dolores Chirlaque

Mónica Ballesta

Ricardo Vaamonde

Mª José Sánchez

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Sandra Garrido

Juan Francisco Molina

Manuel Lodeiro

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VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION

RCM
Registro de Cáncer de Murcia

Región de Murcia
Consejería de Salud
Dirección General de Salud Pública y Adicciones

- Population Murcia Region 2023: 1 556 568 inhabitants.

WWW.INE.ES

- Number of incident cancer cases in 2022-2023: 14599.

https://sms.carm.es/ricsmur/bitstream/handle/123456789/13104/bem.2024.44.883.pdf?sequence=1&isAllowed=y

VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION

- **I. SOURCES OF INFORMATION**

- **II. VALIDATION OF DIGITAL SOURCES OF INFORMATION**

- **III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE**

  Fist step: normalization

  Second step: codification

  Third step: linkage with person in oficial Health Care Database

- **IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM**

  Decisional algorithms

I. SOURCES OF INFORMATION

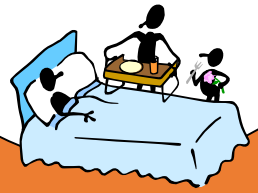
Pathological laboratories

Mortality Registry

Death Certificate

Reimbursement registry

Hospital Discharge
Pathological reports
Haematology
Radiotherapy
Oncology



Screening Programmes

Spanish Associatio Against Cancer

National Registry Childhood cancer

Registro de Cáncer de Murcia

asociación española contra el cáncer

RETI
Registro Español de Tumores Infantiles

FUENTES DE INFORMACIÓN HOSPITALARIAS	
HOSPITAL	Servicio
H. Virgen de la Arrixaca	Anatomía Patológica. CMBD. Oncología,Radioterapia,Hematología
H. R. Sofía	Anatomía Patológica. CMBD
H. Virgen del Rosell	Anatomía Patológica. CMBD. Hematología.
H. Morales Meseguer	Anatomía Patológica. CMBD. Onco-Hematología
H. R.Méndez	Anatomía Patológica. CMBD.
H. Noroeste	Anatomía Patológica CMBD.
Hospital Altiplano	Anatomía Patológica CMBD. Hematología.
H. los Arcos	Anatomía Patológica. CMBD.
H. de Cieza	Anatomía Patológica. CMBD
H. de Molina	CMBD
H. la Vega	CMBD
H.San Carlos	CMBD
H.PerpetuoS	CMBD
H. Caridad	CMBD
H. Cehegín	CMBD
H. Mesa C.	CMBD
H. Alcantar.	CMBD
H.V. Alcázar	CMBD
H. Cli. Bernal	CMBD
R.Villademar	CMBD

▶I. SOURCES OF INFORMATION

FUENTES DE INFORMACIÓN NO HOSPITALARIAS
Laboratorio Dr. Sola- Anatomía Patológica
Laboratorio Dra. Arcas- Anatomía Patológica
Laboratorio Dr. Remezal- Anatomía Patológica
Laboratorio Dr. Pérez Guillermo- Anatomía Patológica
Laboratorio Dr. Ortiz- Anatomía Patológica
Reintegro Gastos SMS- Listado reintegro gastos
Registro de SIDA- Casos diagnosticados
Programa Prevención Cáncer Mama- Casos diagnosticados
Programa de Prevención de Cáncer de Colon y Recto- Casos diagnosticados
Certificados de Defunción- Casos diagnosticados

VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION

I. SOURCES OF INFORMATION

1. Available in electronic support?
   - HOSPITAL DISCHARGE
   - PATHOLOGICAL REPORTS
   - DEATH CERTIFICATE

2. Code?
   - HOSPITAL DICHARGE ICD-10
   - PATHOLOGICAL REPORTS SNOMED VS NO CODE
   - DEATH CERTIFICATE ICD-10

3. Diagnostic codes valid?
   - STUDY ON VALIDATION OF DIAGNOSTIC CODES:
   - HOSPITAL DISCHARGE-PATHOLOGICAL REPORTS

VALIDATION OF DIGITAL SOURCES OF INFORMATION AND DECISIONAL ALGORITHMS IN CANCER REGISTRATION

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  Decisional algorithms

Just to apply decisional algorthms… we need:

VALIDATION OF DIAGNOSTIC CODES FROM HOSPITAL DISCHARGE

- **A. Validation of colorectal cancer diagnostic codes in a hospital administration data set.**
- **B. Validity of Hospital discharge with diagnostic and procedures codes related to female breast cancer in Spain.**
- **C. Is hospital discharge administrative data an appropriate source of information for cancer registries purposes? Some insights from four Spanish registries.**

VALIDATION OF DIAGNOSTIC CODES PATHOLOGICAL REPORTS

- **D. Quality of data on morphology codes from pathology reports in Murcia-Spain.**

- **A. Validation of colorectal cancer diagnostic codes in a hospital administration data set.**

[Validation of colorectal cancer diagnostic codes in a hospital administration data set]

[Article in Spanish]
Mirari Márquez Cid [1], Isabel Valera Niñirola, María Dolores Chirlaque López, Jacinta Tortosa Martínez, Encarnación Párraga Sánchez, Carmen Navarro Sánchez

Affiliations + expand

PMID: 16942712 DOI: 10.1157/13091140

Full text at GACETA SANITARIA

Objectives: To validate the ability of a hospital administration data set (minimum data set [MDS]) to detect incident cases of colorectal cancer using the Murcia Cancer Registry (MCR) as the gold standard and to measure agreement between the MDS and registration of colorectal cancer.

Conclusions: Because of its high sensitivity, the MDS is a good source for detecting incident cases of cancer. The high agreement found in the site of colorectal cancer helps to consolidate the MDS as a data source for cancer registration.

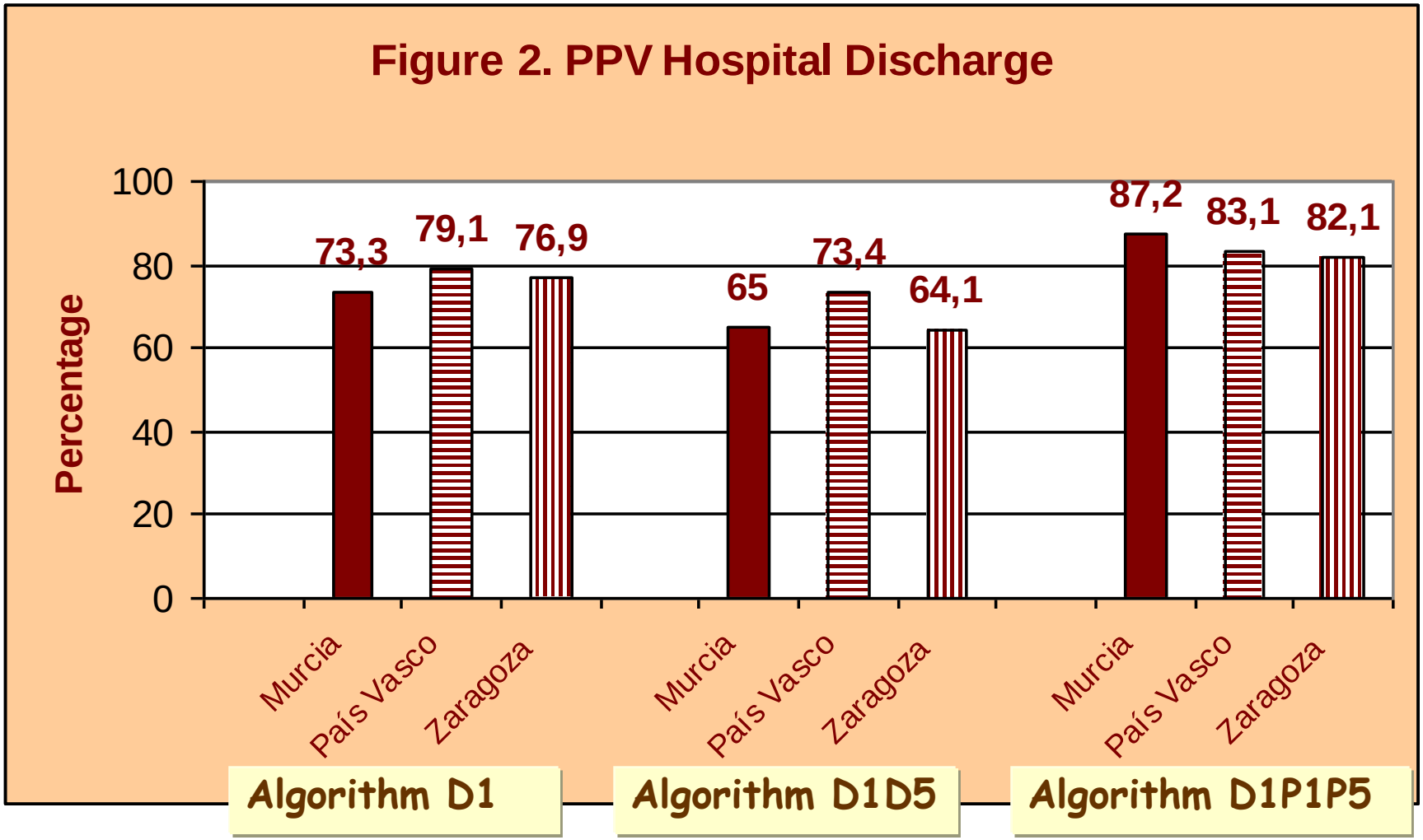
- **B. Validity of Hospital discharge with diagnostic and procedures codes related to female breast cancer in Spain.**

➢Four regions in Spain with population based cancer registries participate in the study, covering a total of 5 million inhabitants (11% of total Spanish population).

➢Case definition is episode of hospitalization in women residing in one of the study areas during caused by breast cancer included in the CMBD.

- **B. Validity of Hospital discharge with diagnostic and procedures codes related to female breast cancer in Spain.**

Figure 2. PPV Hospital Discharge



- **B. Validity of Hospital discharge with diagnostic and procedures codes related to female breast cancer in Spain.**

- A high percentage of cases from minimum data set in hospital discharge are confirmed as true positive mainly when the selection of cases is made taking into account diagnoses codes and procedures.
- Hospital discharge records can be used for identifying incident cases of female breast cancer.
- Further analysis will be necessary continuously because of the completeness of CMBD has been increasing in the last years and we would expect to improve these results.

- **C. Is hospital discharge administrative data an appropriate source of information for cancer registries purposes? Some insights from four Spanish registries.**

Bernal-Delgado E *et al. BMC Health Services Research* 2010, **10**:9
http://www.biomedcentral.com/1472-6963/10/9

BMC Health Services Research

RESEARCH ARTICLE Open Access

Is hospital discharge administrative data an appropriate source of information for cancer registries purposes? Some insights from four Spanish registries

Enrique Bernal-Delgado E[1*], Carmen Martos[2], Natalia Martínez[1], María Dolores Chirlaque[4,7], Mirari Márquez[4,7], Carmen Navarro[4,7], Lauro Hernando[5], Joaquín Palomar[5], Isabel Izarzugaza[3,7], Nerea Larrañaga[3], Olatz Mokoroa[3], M Cres Tobalina[3], Joseba Bidaurrazaga[3], María José Sánchez[6,7], Carmen Martínez[6,7], Miguel Rodríguez[6,7], Esther Pérez[6,7], Yoe Ling Chang[6,7]

- **C. Is hospital discharge administrative data an appropriate source of information for cancer registries purposes? Some insights from four Spanish registries.**

Abstract

Background: The use of hospital discharge administrative data (HDAD) has been recommended for automating, improving, even substituting, population-based cancer registries. The frequency of false positive and false negative cases recommends local validation.

Methods: The aim of this study was to detect newly diagnosed, false positive and false negative cases of cancer from hospital discharge claims, using four Spanish population-based cancer registries as the gold standard. Prostate cancer was used as a case study.

Results: A total of 2286 incident cases of prostate cancer registered in 2000 were used for validation. In the most sensitive algorithm (that using five diagnostic codes), estimates for Sensitivity ranged from 14.5% (CI95% 10.3-19.6) to 45.7% (CI95% 41.4-50.1). In the most predictive algorithm (that using five diagnostic and five surgical codes) Positive Predictive Value estimates ranged from 55.9% (CI95% 42.4-68.8) to 74.3% (CI95% 67.0-80.6). The most frequent reason for false positive cases was the number of prevalent cases inadequately considered as newly diagnosed cancers, ranging from 61.1% to 82.3% of false positive cases. The most frequent reason for false negative cases was related to the number of cases not attended in hospital settings. In this case, figures ranged from 34.4% to 69.7% of false negative cases, in the most predictive algorithm.

Conclusions: HDAD might be a helpful tool for cancer registries to reach their goals. The findings suggest that, for automating cancer registries, algorithms combining diagnoses and procedures are the best option. However, for cancer surveillance purposes, in those cancers like prostate cancer in which care is not only hospital-based, combining inpatient and outpatient information will be required.

- **D. Quality of data on morphology codes from pathology reports in Murcia-Spain.**

Some insights

To evaluate the agreement

on ICD-O-3 topography and morphology codes in real cases of a population based cancer registry doubly coded:

cases coded **manually** (staff) and

cases coded **automatically** (developed software).

II. VALIDATION OF

- **D. Quality of data on morphology codes from pathology reports in Murcia-Spain.**

Conclusion:

- **A high overall agreement is observed.**
- **For some morphology groups the future automated process could be implemented maintaining the current quality indicators in the cancer registry.**
- **Other groups will require a manual examination before being stored.**

QUALITY OF DATA ON MORPHOLOGY CODES FROM PATHOLOGY REPORTS IN MURCIA - SPAIN

Chirlaque MD*, Márquez M*, Navarro C*, Bermejo J**, Rodríguez-Barranco M*, Tortosa J*, Valera I*, Garrido S*, Párraga E*.

*Epidemiology Department, Murcia Health Council.
**University Hospital Virgen de la Arrixaca, Murcia.
mdolores.chirlaque@carm.es

INTRODUCTION:

The automation of cancer registration allows to obtain a high benefit of the codified information and reduce manual time to complete cancer cases. As a previous step to an automatic process is necessary to know the validity of codified and stored information in magnetic support because the automatic process does not have to decrease the quality of data, quite the opposite, it will have to improve.

OBJETIVE: to measure the agreement in morphology codes of malignant neoplasms between pathological reports and those registered at the population-based cancer registry.

METHODS:

The information of pathological reports come from the Pathological Department of the main hospital in Murcia Region, south-east Spain, whereas incident tumors have been obtained from Murcia Cancer Registry (RCM). Both have been selected from year 1998.
The pathological reports included in the study have been those with morphology codes malignant primary site (5th digit /3), in one or several reports but with the same morphology codes. So, reports that show more than one morphology code of different invasive tumor (except 8000/3) have been excluded.
We analyse the agreement in SNOMED (Systematized Nomenclature of Medicine) morphology codes at first three digits level that for neoplasms range from 800 to 998.
Agreement has been measured for all morphological groups and by specific morphological groups:

- Epithelial, squamous cell and basall cell neoplasms (801-811)
- Transitional cell papillomas and carcinomas (812-813)
- Adenocarcinomas (814-855)
- Complex epithelial and specialized gonadal neoplasms (856-867)
- Paragangliomas and glomus tumors, nevi and melanomas (868-879)
- Soft tissue tumors and sarcomas (880-958)
- Lymphomas and leukemias (959-998)

by means of the Kappa index and a 95% confidence interval. The statistical software has been Stata V7.0.

Tabla 1. PATHOLOGICAL REPORTS

RCM \ PATHOLOGICAL REPORTS	801-811	812-813	814-855	856-867	868-879	880-958	959-998	Total
801-811	716	35	34	1	0	1	0	787
812-813	0	20	0	0	0	1	0	21
814-855	14	0	417	1	1	0	1	434
856-867	0	0	0	1	0	0	0	1
868-879	0	0	1	0	29	0	0	30
880-958	2	0	2	0	0	66	0	70
959-998	2	0	1	0	0	0	44	47
Total	734	55	455	3	30	68	45	1390

RESULTS:

1405 incident cases have been included in the analysis, but 15 of them present a pathological code of 800 (not include in table 1 and figure 2). These cases will have to be codified always manually in cancer registration.
The **percentage in overall agreement** between the two sources of information has been 78.7%, **Kappa index** 0.75 (IC 0.73-0.77).
By morphology groups:

- Epithelial, squamous cell and basall cell neoplasms, which represents 51% of total cases, show the highest agreement, Kappa index 0.87 (CI 0.81-0.92).
- Lymphomas and leukemias, which represents 3% of total cases, offer the lowest agreement with a percentage of 25%, Kappa 0.20 (CI 0.14-0.27).
- Transitional cell papillomas and carcinomas stand out from the rest by disagreement, with a negative Kappa index.

The lack of agreement normally takes place within next morphology groups.

Figure 1. NUMER OF CASES BY MORPHOLOGY GROUPS

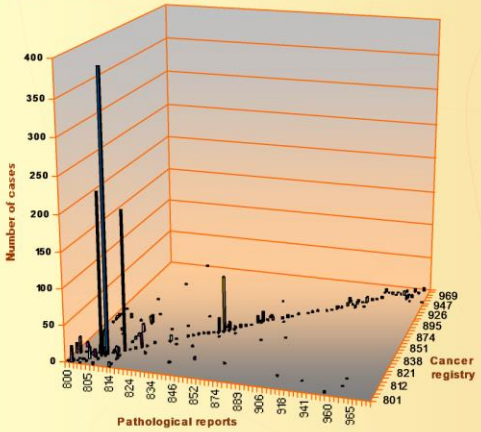
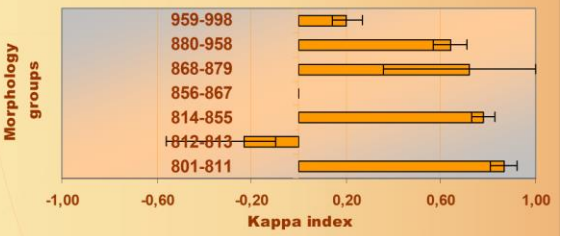


Figure 2. KAPPA INDEX BY MORPHOLOGY GROUPS



CONCLUSIONS:

A high overall agreement is observed. For some morphology groups the future automated process could be implemented maintaining the current quality indicators in the cancer registry. Other groups will require a manual examination before being stored.

Registro de Cáncer de Murcia
Health Council Murcia Region
Ronda de Levante. 11street
30008. Murcia - Spain

III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

- I. SOURCES OF INFORMATION
- II. VALIDATION OF DIGITAL SOURCES OF INFORMATION
- III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE
  - Fist step: normalization
  - Second step: codification
  - Third step: linkage with person in oficial Health Care Database
- IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM
  - Decisional algorithms

► III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

Fist step: normalization: automatic with commands

Second step: automatic codification in no codificated variables

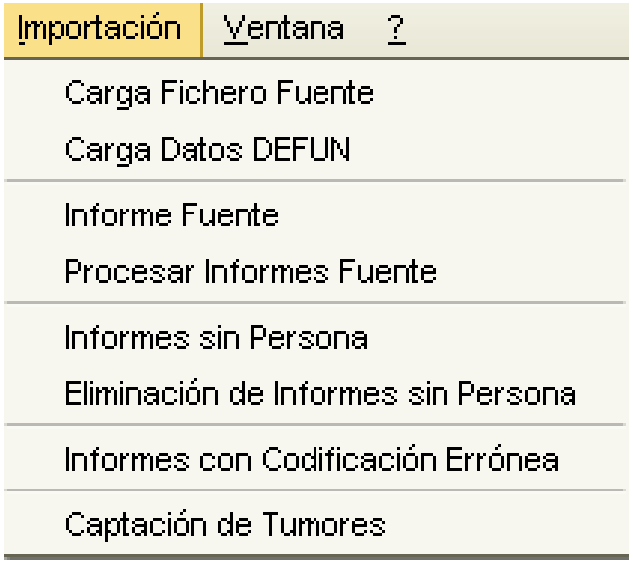
Third step: linkage with person in oficial Health Care Database

Process of data load:

- CMBD

- DEATH CERTIFICATE

- PATHOLOGICAL REPORTS



III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

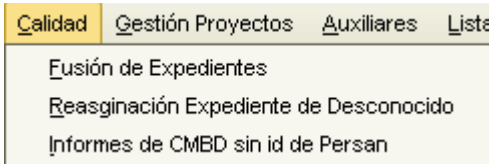
► AUTOMATED PROCESS OF DATA LOAD ►► CMBD AND DEATH CERTIFICATE

Automated selection of cases that meet the criteria: ICD-10 codes in any CMBD/ DEATH CERTIFICATE diagnosis.

	Rango CIE-9	Rango CIE-10	Incluidos	CIE-9	CIE-10
Malignos	140-209	C00-C97	Se incluyen todos	140-209	C00-C97
Benignos	210-229	D10-D36	Sólo SNC	225	D32-D33
In situ	230-234	D00-D09	Se incluyen todos		
Inciertos	235-239	D37-D48	Vejiga	236.7	D41.4
			SNC	237.5-237.9	D42-D43
Inciertos en CIE9 y CIE10 pero malignos en CIEO-3			Trastornos mieloproliferativos crónicos	238.4 238.5 238.6 238.7	D45 D46 D47

↓

Automatic linkage with the people Health Care System database.



↓

Correction of error (less than 1%).

↓

New people no previously registered (less than 1%).

III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

► ► AUTOMATED PROCESS OF DATA LOAD ►► PATHOLOGICAL REPORTS (NO CODES):

An automated process has been implemented to select cases and to generate ICEO-3 location and morphology codes from the pathological anatomy diagnoses

--Table of terms with their corresponding codes.

--Automatic algorithm to classify reports:

↓

Cases selected as registered:

high sensitive algorithm that includes most of the registered cases (true positives) but also includes non-registered (false positives).

SNOMED Mapping – ICD-10 – ICD-3

Topography and Morphology

Conversion tables

↓

Cases selected as no registered: high specificity: automatically discarded (>90% of reports) without manual review.

III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

► ► AUTOMATED PROCESS OF DATA LOAD ►► PATHOLOGICAL REPORTS (NO CODES):

Término codificación

Palabra	Código	Localización	Código	Histología	Prioridad	Palabra completa	Fecha	P
ADAMANTINOMA			92613	ADAMANTINOMA DE HUESOS LARGOS (C40._)		☐	24/11...	MI
ADENOCARCINOMA			81403	ADENOCARCINOMA, SAI		☐	29/11...	MC
ALTO GRADO			80772	NEOPLASIA INTRAEPITELIAL ESCAMOSA, ALTO GRADO		☐	24/11...	MI
ANEMIA REFRACTA...			99803	ANEMIA REFRACTARIA		☐	24/11...	MI
ANGIOENDOTELIOM...			97123	LINFOMA DE CELULAS B GRANDES INTRAVASCULAR (...		☐	16/11...	MI
AREB			99803	ANEMIA REFRACTARIA		☑	16/11...	MI
ASKIN			93653	TUMOR DE ASKIN		☐	16/11...	MI
ASTROCITOMA			93841	ASTROCITOMA SUBEPENDIMARIO DE CELULAS GIGAN...		☐	16/11...	MI
ATIPICO			80013	CELULAS TUMORALES MALIGNAS		☐	24/11...	MC
BLASTOMA			80003	NEOPLASIA MALIGNA		☐	16/11...	MI
CADENAS PESADAS			97623	ENFERMEDAD DE LA CADENA PESADA SAI		☐	16/11...	MI
CARCINO			80103	CARCINOMA SAI		☐	16/11...	MI
CELULAS NEOPLASI...			80001	NEOPLASIA INCIERTO SI ES BENIGNO O MALIGNO		☐	22/12...	MC
CIN III			80772	NEOPLASIA INTRAEPITELIAL ESCAMOSA, ALTO GRADO		☐	16/11...	MI
CIN-III			80772	NEOPLASIA INTRAEPITELIAL ESCAMOSA, ALTO GRADO		☐	16/11...	MI
CINIII			80772	NEOPLASIA INTRAEPITELIAL ESCAMOSA, ALTO GRADO		☐	16/11...	MI
CITOPENIA REFRAC...			99853	CITOPENIA REFRACTARIA CON DISPLASIA MULTILINAJE		☐	16/11...	MI
CLOROMA			99303	SARCOMA MIELOIDE (VER TAMBIEN M- 98617/3)		☐	16/11...	MI
CORDOMA			93723	CORDOMA DESDIFERENCIADO		☐	16/11...	MI

Topography and Morphology

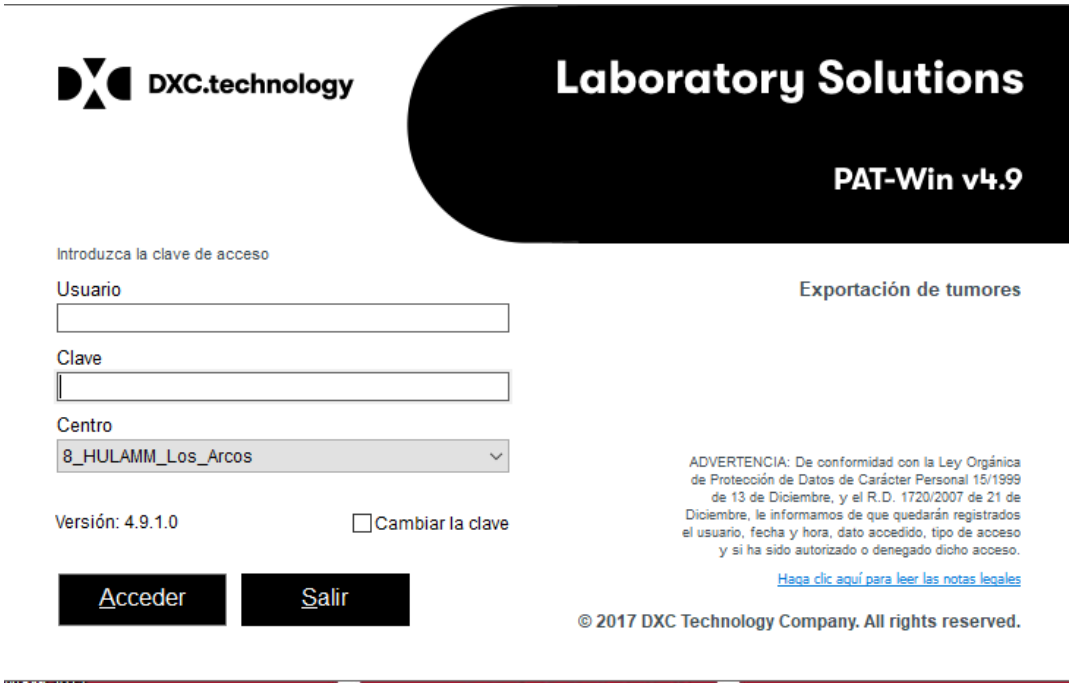
Conversion tables

III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE

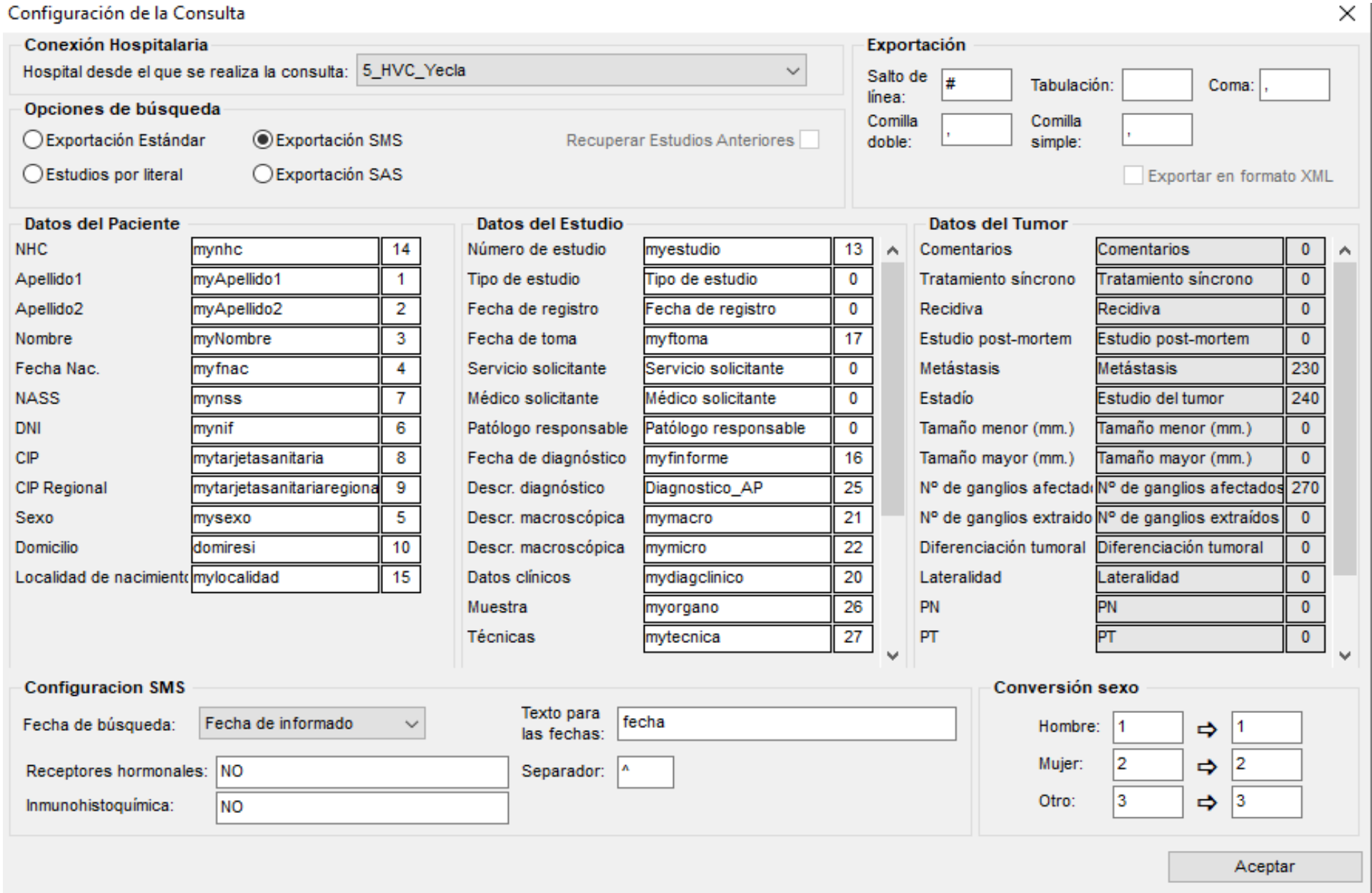
► ► AUTOMATED PROCESS OF DATA LOAD ►► PATHOLOGICAL REPORTS (NO CODES):

- Automated upload of cases as external sources to RCM: all pathology reports that have met the inclusion criteria are uploaded to RCM.

Pathological anatomy downloads from PATWIN ►



III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE



IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

- **I. SOURCES OF INFORMATION**

- **II. VALIDATION OF DIGITAL SOURCES OF INFORMATION**

- **III. AUTOMATED PROCESS OF DATA LOAD IN THE OFICIAL HEALTH CARE DATABASE**

  Fist step: normalization

  Second step: codification

  Third step: linkage with person in oficial Health Care Database

- **IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM**

  Decisional algorithms

IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

- **CONSOLIDATON OF TUMOURS:**
  - **Joint information of several sources in the same tumor:**

  -Tumor already exist :

  --- Same tumor: update.

  --- Different tumor: multiple: create a new second primary tumor.

  -Tumor doesn't exist:

  --- Creation of new incident tumors.

- **DEVELOPMENT OF ALGORTHMS TO FILL IN THE TUMOUR VARIABLES:**

- Date of incidence: ENCR rules.
- Site / morphology
- behaviour / grade
- Base of diagnosis
- Sources of information
- ICD-10
- Date of death

► IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM: Decisional algorithms

Definition of automated case:

- Codes from different sources must be in agreement:

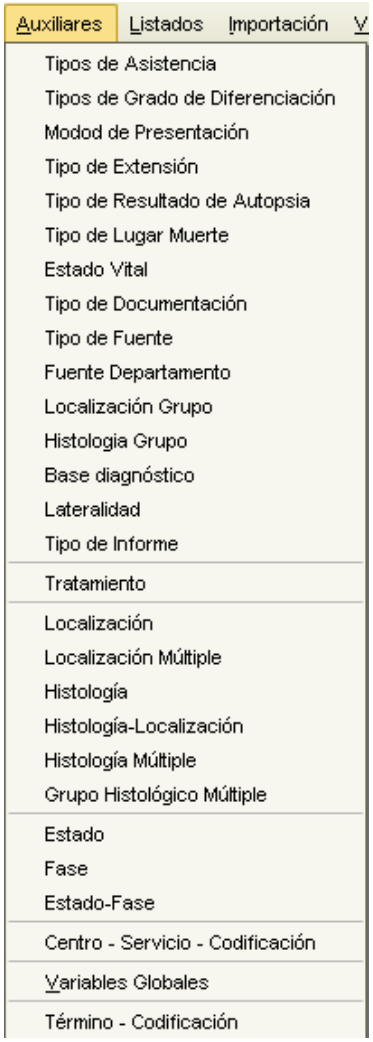
- - Topography: 3 digits level.

- - Morphology: morphology group ICDO.

- Number of sources of information:

-- always more than one, except for pathological reports.

Select the more specific code in morphology of the same group, the higher number.



► IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM: Decisional algorithms

A selected sample of cases have been compared:

- **► 79% of cases are correctly coded automatically at three digit level topography.**
- **► 71% of cases are correctly coded automatically at three digit level morphology.**
- **► 84% of cases are correctly coded automatically by morphology groups ICDO.**

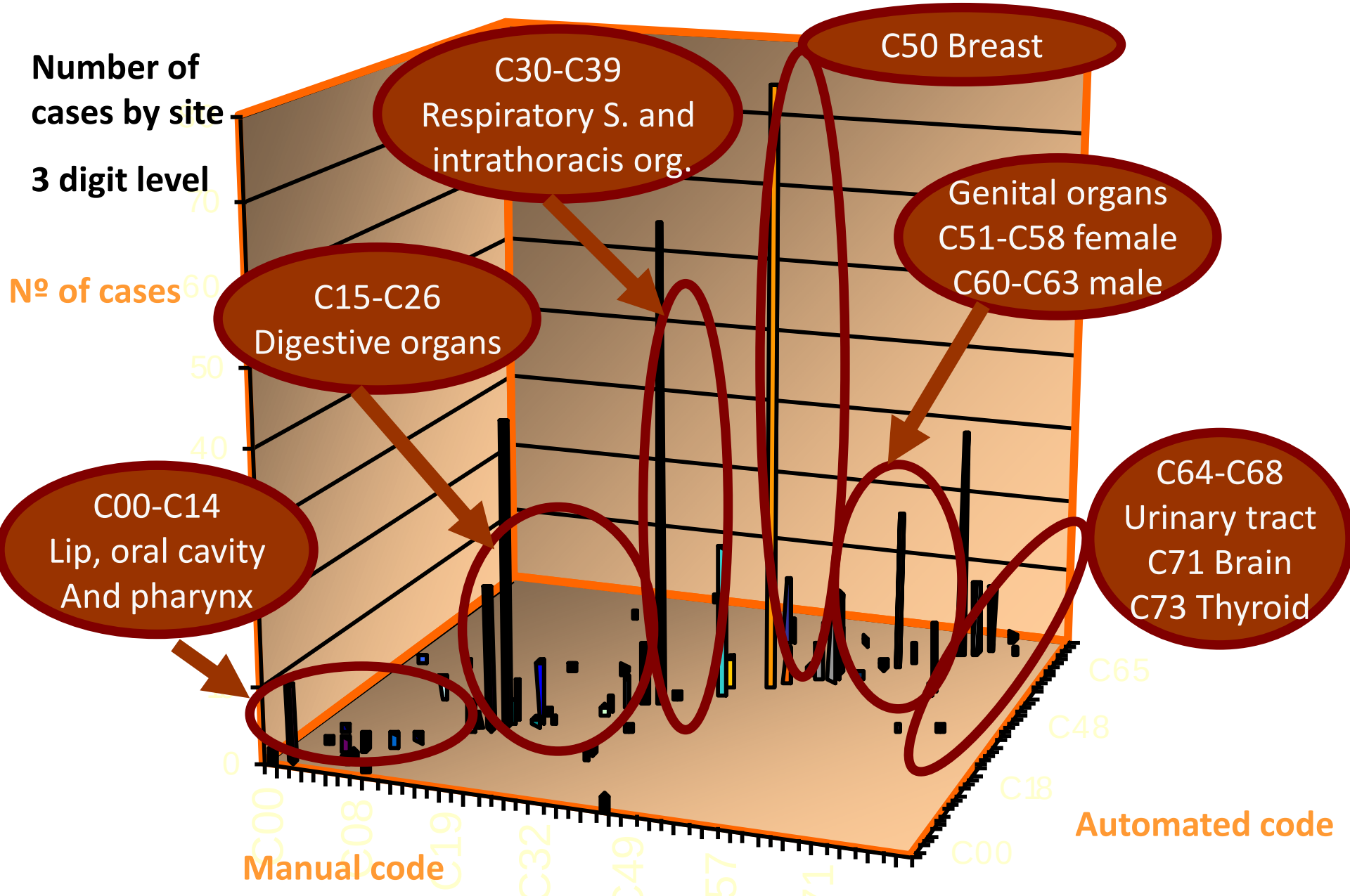
Percentage of agreement by main sites

Manual code

Automated code

% Agreeemnt	C02	C08	C15	C16	C18	C20	C21	C34	C50	C52	C53	C54	C56	C57	C61	C67	C71	C73	C75
C02 Other and un. tongue	**91,0**	9,0																	
C16 Stomach			10,0	**90,0**															
C18 Colon					**100,0**														
C20 Rectum					33,0	**53,0**	7,0	7,0											
C34 Lung								**98,0**								2,0			
C50 Breast									**100,0**										
C53 Cervix uteri											**33,0**	60,0				7,0			
C54 Corpus uteri										5,0		**42,0**		5,0		47,0			
C56 Ovary												100,0	**0,0**						
C61 Prostate															**100,0**				
C67 Bladder					1,0					6,0		3,0				**89,0**			
C71 Brain																	**100,0**		
C73 Thyroid									9,0									**82,0**	9,0

IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

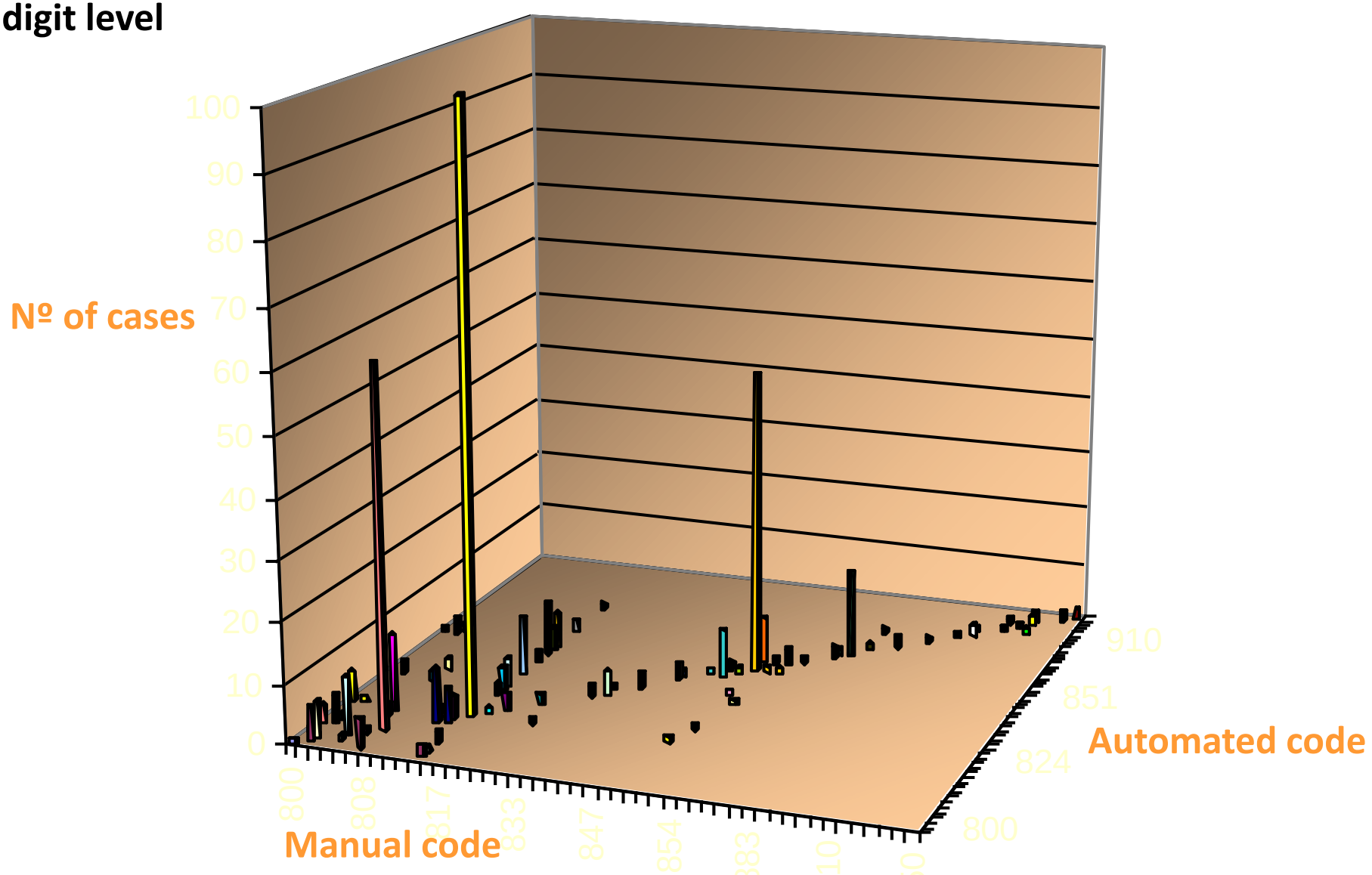


Percentage of agreement by morphology groups

	Manual code			Automated code			
Percentage agreement	**801-804**	**805-808**	**812-813**	**814-838**	**844-849**	**850-854**	**872-879**
801-804 Epithelial neoplasms	**75,0**	15,6		9,4			
805-808 Squamous cell neoplasms	9,0	**91,0**		13,3			
812-813 Transitional cell papillomas and carcinomas		41,7	**58,3**				
814-838 Adenomas and adenocarcinomas	2,0	2,7		**93,9**		1,4	
844-849 Cystic, mucinosus and serous neoplasms				5,0	**46,7**	3,3	
850-854 Ductal and lobular neoplasms	4,0			7,8	1,3	**85,7**	
872-879 Nevi and melanoma							**100,0**

Number of cases by morphology

3 digit level



IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

By site:

-High agreement in

--BREAST, COLON, PROSTATE, BRAIN and LUNG that represent a high number of incident cases.

-Low agreement in

--FEMALE GENITAL ORGANS, BLADDER

IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

By morphology group:

-High agreement in

--Squamous cell neoplasms

--Adenomas and adenocarcinomas

--Nevi and melanoma

-Low agreement in

--Transitional cell papillomas and carcinomas

--Cystic, mucinosus and serous neoplasms

IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

Causes of disagreement:

-Lack of codes accuracy in sources of information.

-Problems with the conversion between classifications.

-The algorithms implemented in the software are being reviewed.

-A high percentage of discordant site have been coded in adjacent topography.

-A high percentage of discordant morphology have been coded in a less specific morphology group.

IV. AUTOMATED PROCESS OF CANCER CONSOLIDATION IN CANCER REGISTRY PROGRAM

BY THE MOMENT,

'AUTOMATIZATION HELP BUT IS NOT ENOUGH'

WE HAVE TO IMPROVE:

- **DIGITALIZATON**
- **PRIMARY CODIFICATION**
- **IMPLEMENTATION OF RULES**
- **MAPING**
- **CONVERSION PROGRAMS…**

¡THANKS FOR YOUR ATENTION!