



# SNOMED CT support to EHR: The experience with Oncology Electronic Health Record Uruguay

## Objective

To share the experience on how the clinical records system used in the Uruguayan National Cancer Registry was adapted to use SNOMED CT to record diagnoses in cancer patients visits.

Occhiuzzi, Rossana;  
Bouza, Mauricio; Callero, Walter;  
Arispe, Betania; Sande, Paulo;  
Portilla, Fernando;  
Orefice, Pablo; Forcella, Jorge.  
Programa Salud.uy- Agesic

**Contact:**  
rossana.occhiuzzi@agesic.gub.uy  
hceo@salud.uy

## Introduction

The Oncology Electronic Health Record (HCEO in its Spanish acronym) is a nationwide information system that helps improving the health care of the oncologic patient by integrating clinical information from all health centers involved in the healthcare process, regardless of the geographical location or healthcare entity, achieving a global vision of the patient.

Moreover, the national scope of HCEO in terms of target population and support of national health policies related to the disease, contributes directly to the National Cancer Registry of Uruguay, which provides substantial information resulting in improved epidemiological information at national level and quality of care assessment.

## Methods

In order to improve the quality of HCEO data registry, it was defined to codify the topography and histology inputs (Fig. 1 & Fig. 2). In that way, the information was added to structured inputs by using terminology services that retrieve the corresponding SNOMED CT mapping.

Within the Project framework, an interdisciplinary team was build up in order to analyze feasibility, define domains and validate mapping.

## Stages

1

SNOMED CT domains which would be consumed by the HCEO topography and Histology inputs were chosen, resulting in the selection of "body structure" and "morphologic abnormality" hierarchies, respectively.

HCEO

2

The list of terms which is currently used in the National Cancer Registry was compared to SNOMED CT's concepts. This procedure was performed in order to check the existence of a valid mapping to SNOMED CT for every term that is used for the National Cancer Registry. Those terms which were not found must be analyzed to be created in Uruguay's SNOMED CT National Extension and then reported through the SNOMED CT International Request Submission (SIRS) to be incorporated to the International Version.

3

Terminology Service- via Web Services- that retrieve Thesaurus' codification was tested through a terminology server. All Current HCEO concepts, loaded on the HCEO data base for topography and histology inputs, were gathered in order to obtain the Thesaurus codes through Web Services. By this way it was possible to test the codification coverage and use feasibility.

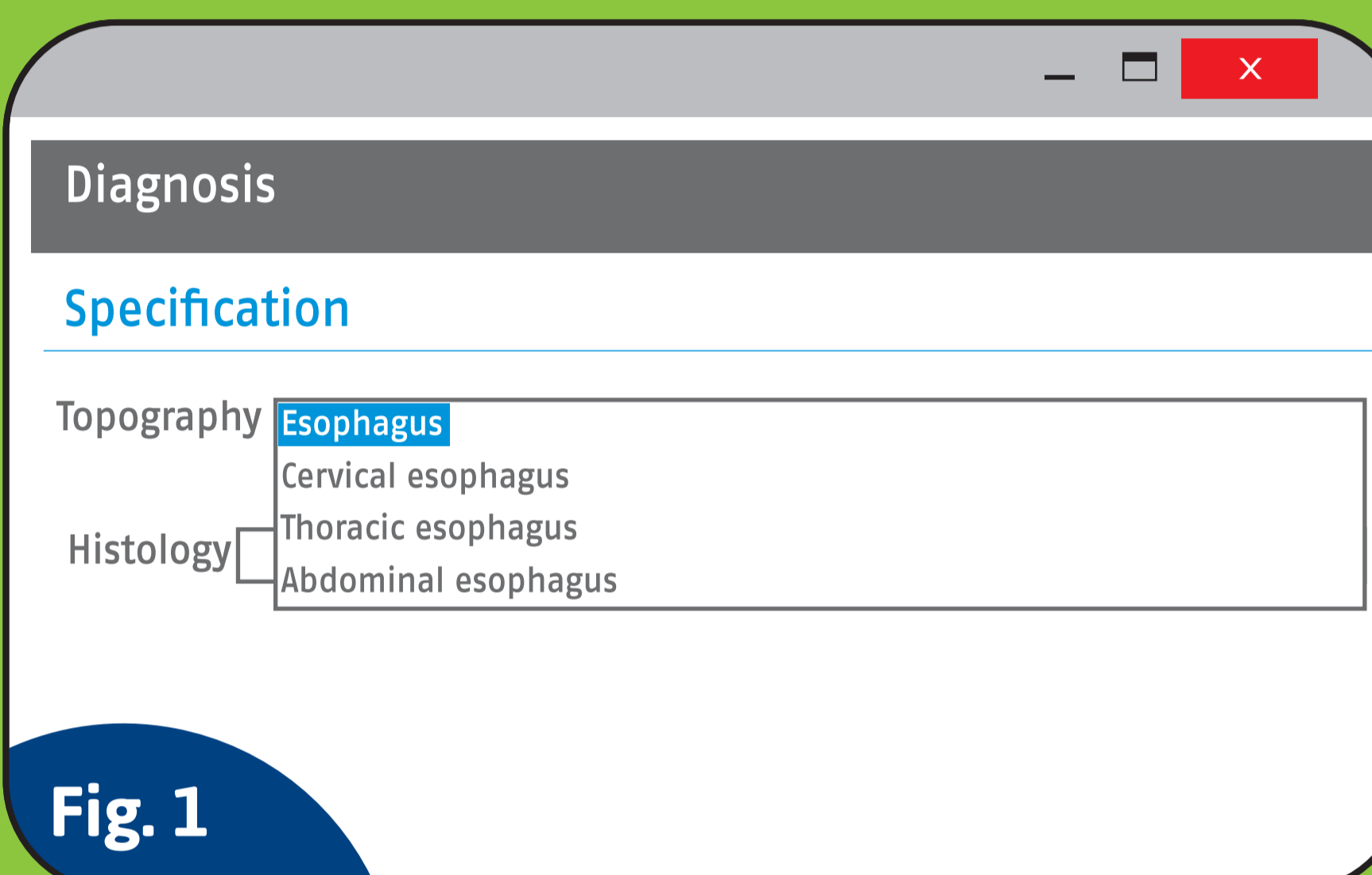


Fig. 1

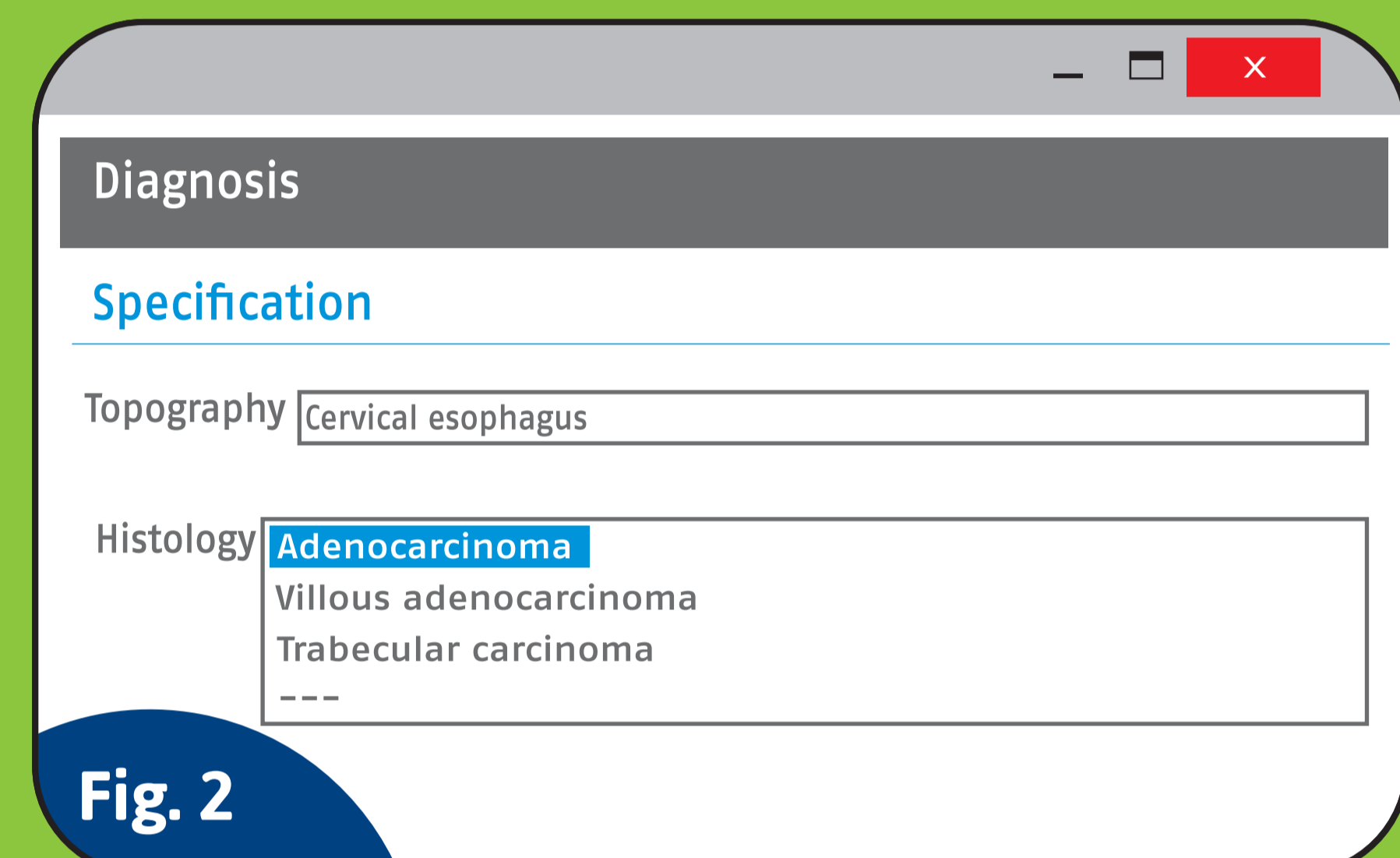


Fig. 2

Once the clinician registers both concepts in HCEO -body structure and morphologic abnormality- and these are stored in their correspondent structured inputs -topography and histology, respectively-, a layers model is used to obtain the SNOMED CT and ICD-O code linked to the clinician's entry (Fig.3).

The implementation of terminology services within HCEO retrieves International Classification of Diseases for Oncology (ICD-O) codes as a final result to be used: for patients' management (Fig.4), as a data source for the Uruguay National Cancer Registry and to obtain epidemiological data.

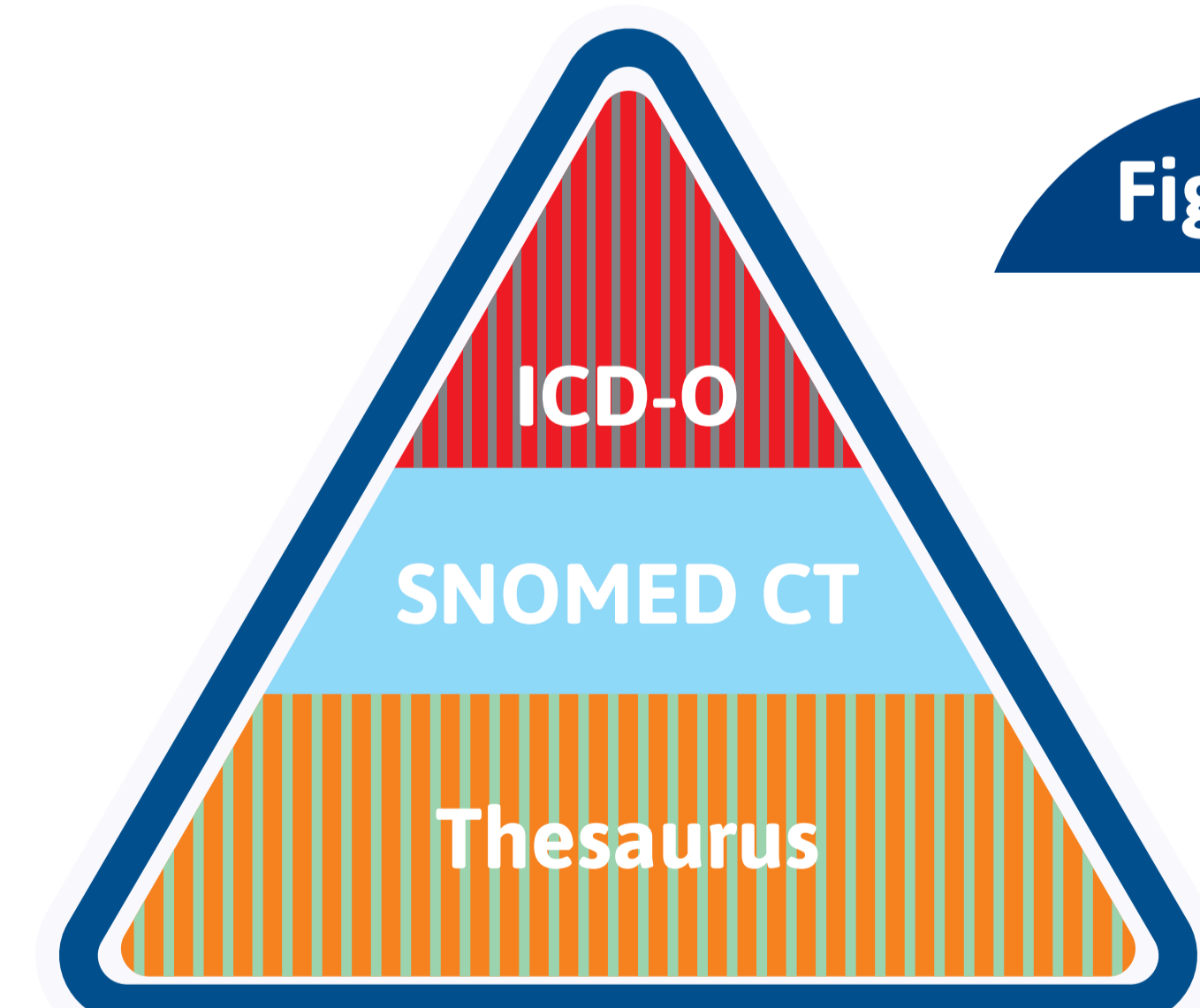


Fig. 3

## Results

HCEO terms, existing in the database until July 2016, were contrasted to concepts from the International SNOMED CT's Edition (released on 31th January 2016) obtaining a coverage level of 88%.

For the inputs histology and topography it was defined to use the official SNOMED CT- ICD-O mapping, specifically the morphologic abnormality and body structure domains, respectively.

Currently, nonexistent synonyms and concepts are being incorporated to Uruguay's National SNOMED CT Extension in order to reach the 12% missing coverage.

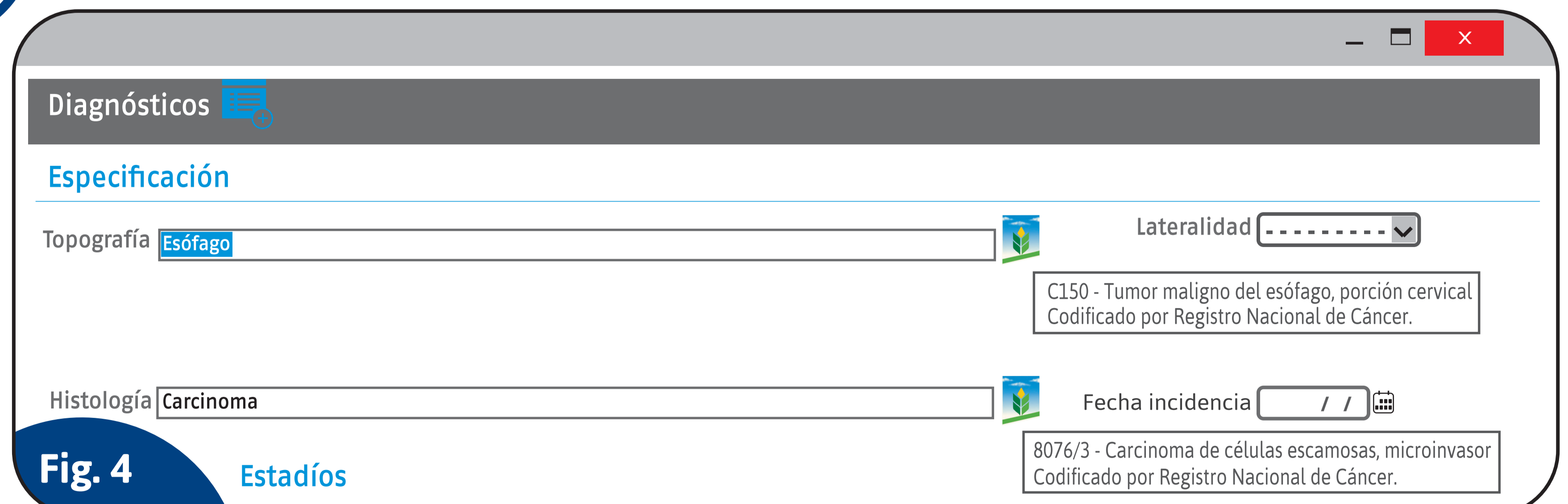


Fig. 4

