Title: Prototype of an electronic system for innovation in the Papillomavirus test registration process

Authors: GUTIÉRREZ-ENRÍQUEZ, Sandra Olimpia, MEJÍA-ARREDONDO, Norma Isela, TERÁN-FIGUEROA, Yolanda and ACUÑA-ARADILLAS, Jorge Martín

INTRODUCTION

Human papillomavirus (HPV)

(HPV)

The main cause of cervical cancer is persistent infection with high-risk HPV.

The most frequent types are 16 and 18.

HPV is one of the most common STIs.

Reduce cervical cancer mortality through screening.

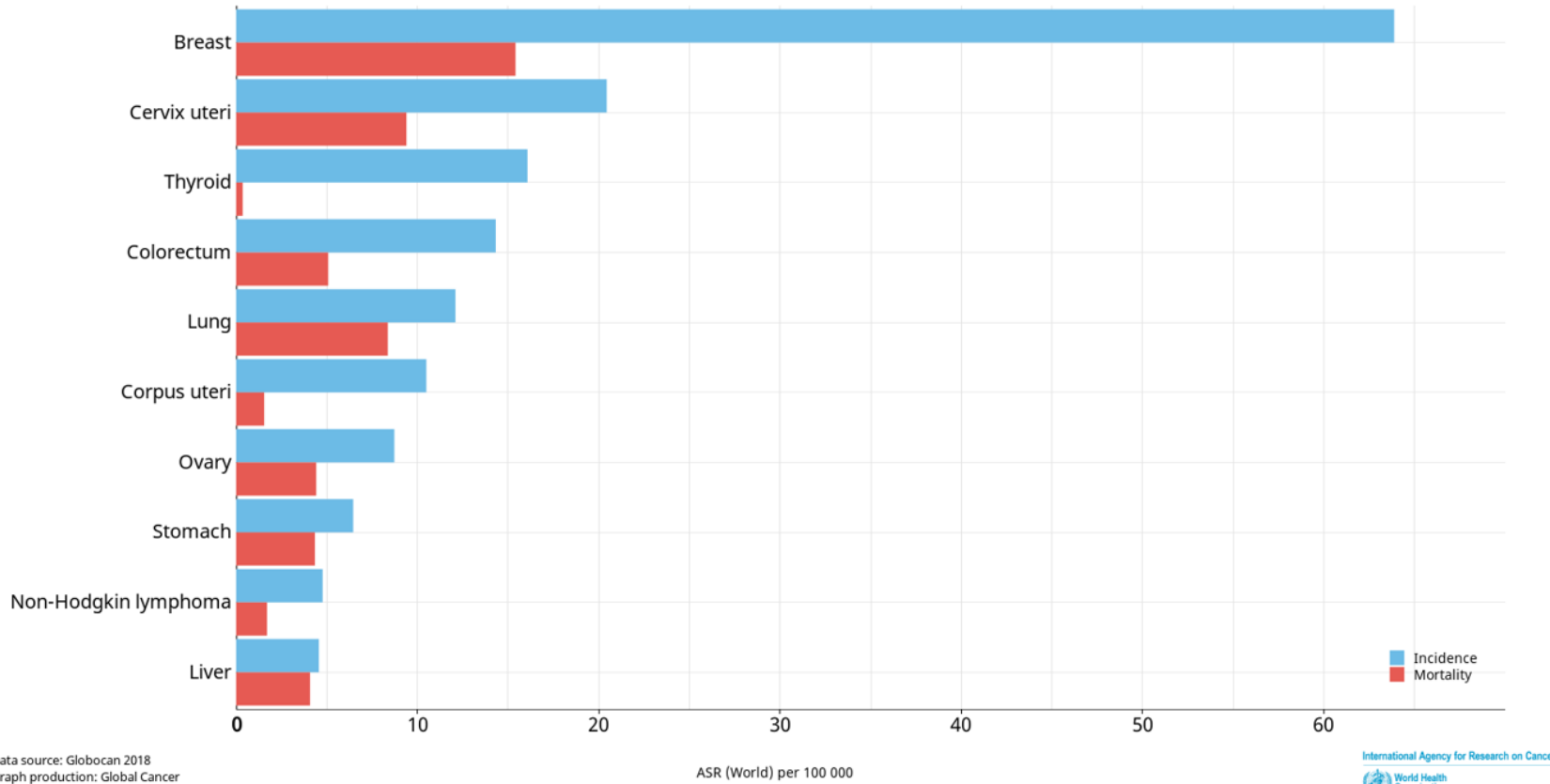**Reduce cervical cancer mortality through screening.**

Cáncer Cervicouterino

Estimated age-standardized incidence and mortality rates (World) in 2018, worldwide, females, ages 20-64

Data source: Globocan 2018
Graph production: Global Cancer
Observatory (http://gco.iarc.fr)

ASR (World) per 100 000

International Agency for Research on Cancer
World Health Organization

Mexico
Incidence (2018) 7869/ 11
Mortality (2018): 4121/5.8

San Luis Potosi
(2019): 135 cases

2nd cause worldwide in women

Source: *GLOBOCAN 2018 (23-July-2019). **Epidemiological Bulletin: National Epidemiological Surveillance System (05-August-2019).

INTRODUCTION
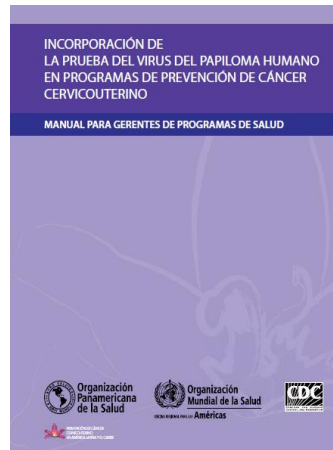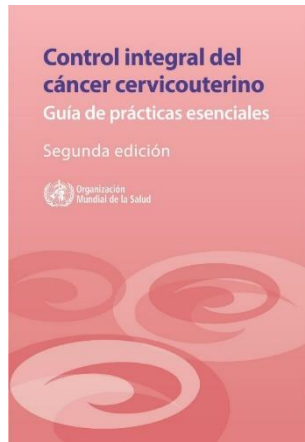
Design of technologies to strengthen health surveillance and statistics.
Use of information systems in the DOCACU program.

Specific Action Prevention and Control of Women's Cancer 2013-2018. Official Mexican Standard NOM-024-SSA3-2012, Electronic Health Record Information Systems. Norma Oficial Mexicana-004- SSA3- 2012, del expedient clínico (Mexican Official Standard-004- SSA3- 2012, of the clinical record).

PROBLEM STATEMENT

Limited quality of records in the DOCACU program.

Excessive use of printed formats and databases.

Weaknesses in manual records.

Difficulty in organizing information.

New technology in the health sector

Conventional manual information system

Electronic system

Design of a computer system for recording the HPV test request and result sheet.

Gutiérrez E, Terán F., Monreal D. Calidad de los registros en un programa de cribado oportuno del cáncer de cuello de útero. Rev MÉD.UIS. 2017

GENERAL OBJECTIVE

To show the results of the effectiveness of the prototype of an electronic system for innovation in the Papilomavirus test registration process.

SPECIFIC OBJECTIVES

- Conduct a feasibility analysis of the project with the institution's management and operational health personnel.
- Carry out the conceptual definition and design of the database.
- Design the screens for the electronic system.
- Implement the electronic system in pilot mode with the participation of health personnel.
- Feedback the system based on the results obtained in the pilot test.
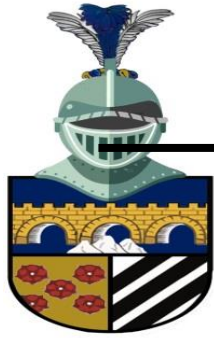
Methodology

Space and time

Module of Attention to Women of the UCIIS.

Period: November 20 to December 18, 2018.

Participating population:

All health personnel: 2 Bachelor of Science in Nursing trainees, 2 Bachelor of Science in Nursing.
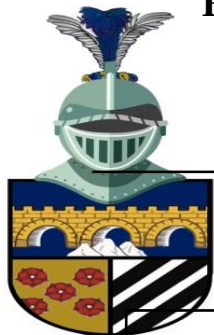
Unit of analysis

32 electronic records of the HPV test result request and report sheet.

Selection:

Non-probability convenience sampling.
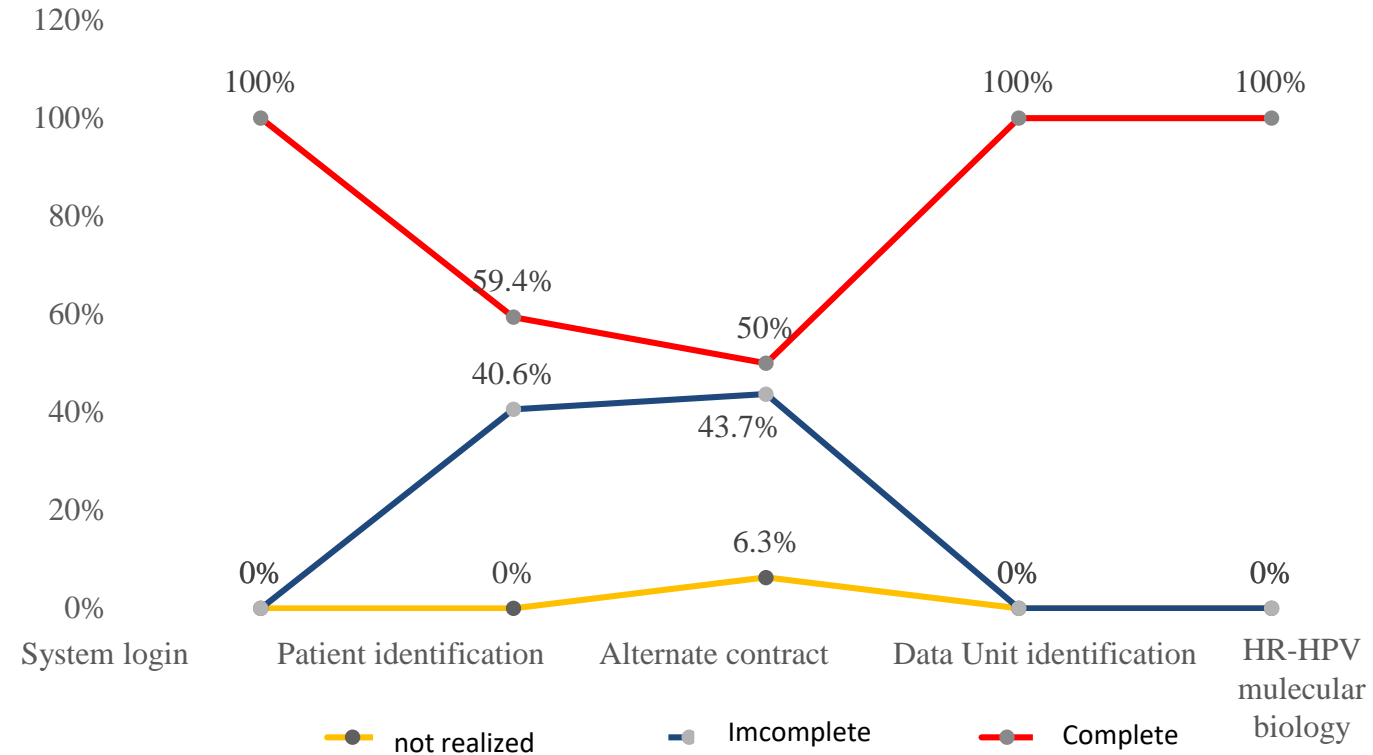
Instruments

Structure	-Checklist (NOM 024-SSA3-2010). -3 sections: infrastructure, safety and decision support. -28 items. Evaluation code: 1 characteristic present, 0 characteristic absent and N not applicable.	Electronic system
Process	-It is an observation guide to verify the recording of data in the electronic system. -41 items. -Evaluation code: not performed, incomplete and complete.	Electronic records
Result	-Staff satisfaction with the Capture System. -Dimensions: structure, process and result. -21 items. -Likert scale: 1 not satisfied, 2 not very satisfied, 3 regularly satisfied, 4 satisfied and 5 very satisfied.	Health personnel

Table 2.1 Characteristics of the electronic system based on the indicators of the Mexican Official Standard

Results

Indicator	Observations	Compliance
Infrastructure	Computer equipment, printing and internet connectivity.	Fulfills
Security	Access by username and password.	Fulfills
Authentication	Identifies users and each health professional. Authenticate users before allowing access.	Fulfills
Request for diagnostic aids	Allows recording of results. Presents past and current results. Identifies the person responsible for generating results.	Does not comply
Clinical communication support	Maintains communication with laboratory. Sends request to recipient (laboratory). Receives notifications of received request.	Does not comply
Management and review of clinical information	Creates a single electronic request form. Displays patient identification (screen). Uniquely identifies healthcare personnel.	Fulfills
Demographic data management	Stores established identification and demographic data.	Fulfills
Registration and updating of medical records	Validates the filling with the minimum information, displays and classifies the data chronologically.	Fulfills
Patient directory	It has a directory (patients) that allows its identification and location.	Fulfills
Report generation	Generates application logs and daily reports for printing.	Fulfills

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Figure 1.1 Evaluation of the capture process of the prototype of the electronic system for recording HPV test data, according to the official format of the Mexican Ministry of Health.
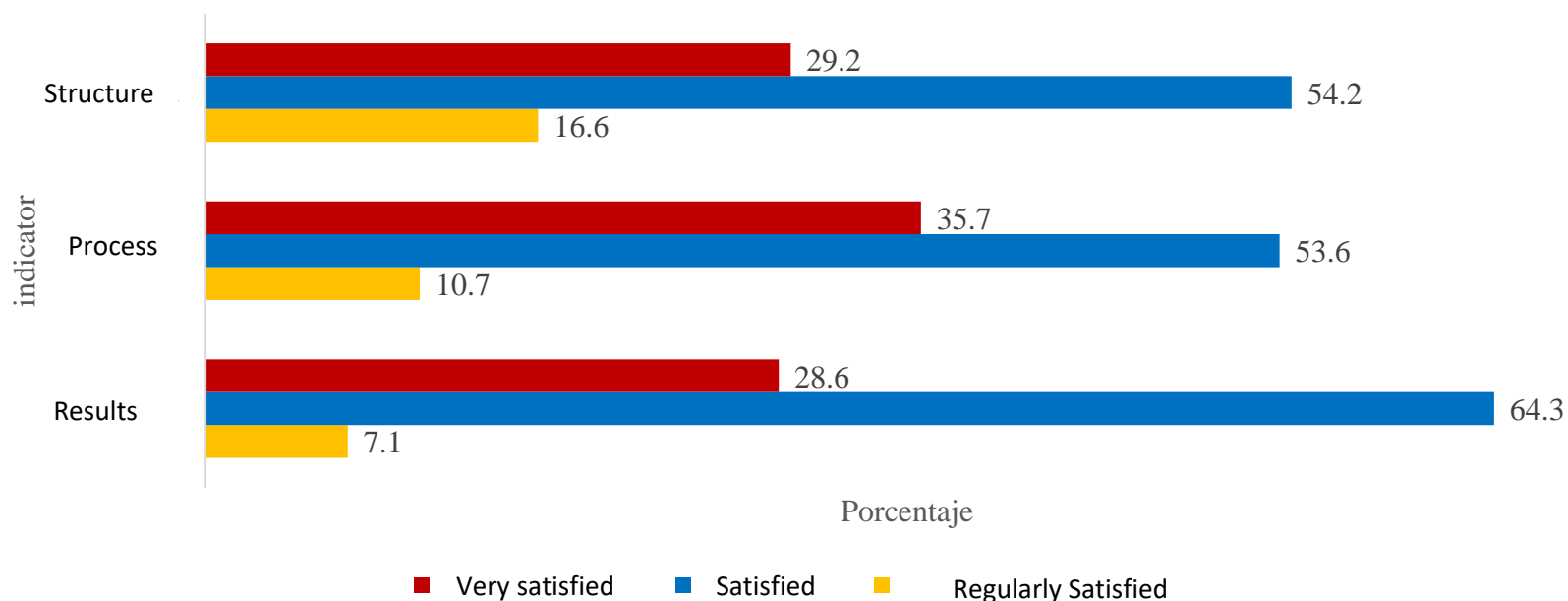
Figure 2.1 Health personnel satisfaction with the use of the electronic system: structure, process and outcome.

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Thematic

Table 3.1 Satisfaction of health professionals with the use of the electronic system for recording data from the HPV request and results reporting sheet based on the dimensions of structure, process, and outcome.

Criteria	Level of satisfaction		
	Regularly Satisfied	Satisfied	Very Satisfied
	%	%	%
Structure			
System completeness	25 (1)	50 (2)	25 (1)
Ease of access	25 (1)	75 (3)	0
Immediate availability	25 (1)	50 (2)	25 (1)
Data security	25 (1)	50 (2)	25 (1)
Clear screens	0	25 (1)	75 (3)
Allows integration	0	75 (3)	25 (1)
Process			
Ease of data entry	25 (1)	50 (2)	25 (1)
Menu: easy to use	0	75 (3)	25 (1)
Menu: fulfills functions	25 (1)	50 (2)	25 (1)
Speed	0	75 (3)	25 (1)
Ease of operation	0	50 (2)	50 (2)
Updating of records	25 (1)	50 (2)	25 (1)
Does not accept missing data	0	25 (1)	75 (3)
Result			
Usefulness as an administrative tool	25 (1)	75 (3)	0
Adaptability to staff needs	0	75 (3)	25 (1)
Usefulness to improve quality	0	75 (3)	25 (1)
(service) Time savings	0	50 (2)	50 (2)
Legibility of the record	0	25 (1)	75 (3)
Completeness of the record	25 (1)	75 (3)	0
Accuracy of the record	0	75 (3)	25 (1)

Conclusions

The electronic system had a positive impact on the records kept by health personnel in terms of the three indicators evaluated: structure, process and result. The benefits expressed by the participants with the use of the platform were the following: ease of use and access, attractive and user-friendly system, good information management and reduction of time spent on records; however, it is recommended to continue with the development of the system and implement it in other work scenarios, with the purpose of reaching the commercialization phase.

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