

**FACULTAD DE INGENIERÍA**

Escuela Académico Profesional de Ingeniería de Sistemas e Informática

Tesis

**Web Application for the Provision and  
Dispensing of Electronic Prescriptions**

Edwin Jhon Mantilla Ponce  
Wilver Auccahuasi Aiquipa

Para optar el Título Profesional de  
Ingeniero de Sistemas e Informática

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Yo: WILVER AUCCAHUASI AIQUIPA, con Documento nacional de identidad (DNI) N° 43375865; teléfono 971006824; estudiante de la Escuela Académico Profesional de Ingeniería de Sistemas e Informática.

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# Web Application for the Provision and Dispensing of Electronic Prescriptions

Edwin Mantilla-Ponce  
Universidad Continental  
Huancayo, Perú  
40731673@continental.edu.pe

Wilver Aucchuasi  
Universidad Continental  
Huancayo, Perú  
wauccahuasi@continental.edu.pe

**Abstract**—The electronic prescription service will be interoperable with the National Health System, i.e. the medication prescribed to the patient can be dispensed from any hospital in the country and its information will generate a pharmacological history, and this data can be used for future prescriptions for the patient, who will be attended by any doctor in the public hospital network nationwide. In addition, for the control of the medication, the dispensation will be done by presenting the patient's identity document. This paper describes a method to develop a web system that allows the registration of patients, medical prescriptions, the control of prescriptions prescribed by the doctor, as well as the dispensing of medicines in the pharmacies of the health facility. On the other hand, a control of all the patient's prescriptions will be kept at a national level, being the patient attended in any hospital establishment in the country. The results of the performance tests used to measure the influence of the web application show that it is a more secure, reliable and scalable system that can be used in any hospital health center with Internet access. The electronic prescription service will be interoperable with the National Health System, i.e. the medication prescribed to the patient can be dispensed from any hospital in the country and its information will generate a pharmacological history, and this data can be used for future prescriptions for the patient, who will be attended by any doctor in the public hospital network nationwide. In addition, for the control of the medication, the dispensation will be done by presenting the patient's identity document. This paper describes a method to develop a web system that allows the registration of patients, medical prescriptions, the control of prescriptions prescribed by the doctor, as well as the dispensing of medicines in the pharmacies of the health facility. On the other hand, a control of all the patient's prescriptions will be kept at a national level, being the patient attended in any hospital establishment in the country. The results of the performance tests used to measure the influence of the web application show that it is a more secure, reliable and scalable system that can be used in any hospital health center with Internet access.

## I. INTRODUCTION

The electronic prescription is a digital service that allows physicians to prescribe prescriptions to be dispensed at any pharmacy nationwide. Likewise, this service is interoperable due to the fact that the patient's pharmacological consultations can be made from any hospital center in the country [1]. Digemid approves proposal for the implementation of electronic prescriptions nationwide. This procedure allows authorized physicians to automatically write prescriptions so that the patient can subsequently acquire his or her medications to follow his or her stipulated treatment [2].

It is mentioned that the interoperability of the electronic prescription allows the dispensing of medications to be carried out from any pharmacy in the country, in addition, the patient may have been prescribed by another physician

and from any other health center in any Spanish community. It contributes to the present, that with the implementation of the electronic prescription, the problems of interoperability and prescriptions in real time are reduced, facilitating the online information of the patient's pharmacological history for future medical cases [3].

The Valencian health community concluded that the electronic prescription is a system that allows the interoperability of the existing pharmacological histories of all the autonomous communities in Spain. The interconnection of information is vital because the system is independent and can be used by any health center in the country. It contributes to the present, that with the implementation of the electronic prescription, the interconnection with the information systems at national level is allowed, benefiting patients in any part of the country [4].

In the evolution of electronic prescriptions up to the present day in Norway. It also shows how it was integrated in the health sector and how it became one of the references in that sector. In addition, due to the study, it was obtained the realization of a continuous and progressive implementation in order to satisfy the scopes and improvement concerning the electronic prescription. It contributes to the present, that with the implementation of the electronic prescription it is possible to integrate with other sectors or health areas through interoperability [5].

The advantages of the electronic prescription system are obvious. Patients do not have to go to the hospital to pick up their prescriptions. Likewise, interoperability allows medication to be dispensed from any location. It contributes to the present, that with the implementation of the electronic prescription, it allows to know in real time the pharmacological history of the patient, allowing to know the medicines that he/she had access [6].

The electronic prescription is "a digital document created and signed by an authorized health professional", through a system to be able to make medical prescriptions to patients when needed. In addition, the electronic prescription has as its main function the interoperability with the systems involved in the health sector [7]. In order to improve the quality of health care to the population, the Ministry of Health (Minsa) approved the administrative directive establishing the transaction standard for electronic prescriptions in the prescription and dispensing of medicines and other pharmaceutical products [8].

Through SEGDI (Secretariat of Digital Government), the implementation of electronic prescriptions must comply with interoperability standards at national, regional and local levels so that the information can be used electronically in real time. In view of this, the Ministry of Health is leading to the integration for the implementation of telehealth services