

## Research Paper

# Designing a Minimum Data Set for Electronic Health Record of Patients With Hemorrhoid Disease in Iran



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## ABSTRACT

**Objective** Hemorrhoid disease is one of the most common anorectal diseases that affect millions of people around the world. Implementing a hemorrhoid management and prevention program using its data management system can be an effective step to improve the quality of care, control disease, and improve the society health. The present study aims to determine the minimum data set (MDS) for electronic health record of patients with hemorrhoid disease in Iran.

**Methods** In this descriptive-analytical stud that was conducted in 2021, related papers and clinical records of patients with hemorrhoid disease in Iran were first studied. Then, the proposed MDS was validated using a researcher-made questionnaire based on a Likert scale with acceptable content validity and test-retest reliability ( $r=0.90$ ), and by implementing the Delphi technique based on the opinions of 20 experts (internal medicine specialists and general practitioners in hospitals of Ferdous and Birjand cities and health information management specialists in Ferdous city). Sampling was not done due to the low number of participants. Finally, the findings were analyzed using descriptive statistics in SPSS software version 19.

**Results** A total of 43 data elements were finally selected for implementing the Delphi technique. Of these, two data elements were removed in the first round; therefore, 39 data elements as well as two data elements with a score of 50-75% and three suggested data elements entered the second round of Delphi. Of these, 42 were approved in the second round.

**Conclusion** Determining the MDS for electronic health record of patients with hemorrhoid disease can be an effective step towards integrating the information of these patients in Iran and can improve their information management.

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## Extended Abstract

### Introduction

**H**emorrhoid disease is one of the most common anorectal diseases that affects millions of people in the world and causes many medical, economic and social problems. Statistics have shown that about 5% of people experience hemorrhoids during their lifetime. It is estimated that 50% of people over the age of 50 have experienced the symptoms of this disease at some point in their lives. The implementation of the hemorrhoid management and prevention program using data management system can be a big step in improving the quality of care, controlling the disease, and improving the health of society. The minimum data set (MDS) is one of the effective tools in data collection, which by providing a minimum of variables related to the health status of people, including demographic data, clinical data, and patient records, enables proper communication between care providers and timely decision making for managers. The results of some studies have shown that the health data collected in Iran not only do not meet the national needs, but also do not match the recommendations of international organizations. Therefore, the existence of MDS in the information management system is necessary to meet national and international needs. Considering that the MDS for hemorrhoids is necessary for continuous collection and recording of data, the present study aims to identify the MDS for electronic record of patients with hemorrhoids in Iran.

### Methods

This is a descriptive-analytical study that was conducted in 2021 at two steps. In the first step, the MDS was obtained by searching for related articles in [PubMed](#), [Scopus](#) and [Web of Science](#) databases by combining

two groups of keywords related to MDS and hemorrhoid disease. History, nursing reports and doctor's prescriptions were also collected from the clinical files of patients with hemorrhoids, hospital information system and the opinions of experts and general practitioners. In the second step, based on the findings, the MDS required for the electronic record of hemorrhoid patients was presented. The MDS was validated using a researcher-made questionnaire and the Delphi technique based on the opinions of 20 experts (8 internal medicine specialists and 10 general physicians in hospitals located in Ferdous and Birjand cities as well as two health information management specialists in Ferdous city). Sampling was not done due to the low number of participants. Content validity of the questionnaire and its test-retest reliability ( $r=0.90$ ) were confirmed. Data analysis was done using descriptive statistics (percentage and frequency) in SPSS software version 19.

### Results

A total of 43 data elements were finally selected for implementing the Delphi technique. Of these, two data elements were removed in the first round (score <50%); therefore, 39 data elements with a score >75%, two data elements with a score 50-75% and three suggested data elements entered the Delphi second round. Of these, 42 data elements were confirmed in the second round. They were classified into administrative and clinical data ([Table 1](#)).

### Discussion

Due to the increasing progress in the field of medical sciences and technology, it is very important to provide integrated health care and comprehensive, valid and correct information. To improve the quality of information in electronic health record, it is necessary to have a logical, expandable and flexible structure of data elements.

**Table 1.** The MDS for electronic record of patients with hemorrhoids in Iran

Administrative Data		National ID, first and last names, father's name, admission number, place of birth, age, gender, address, phone number, marital status
Clinical data	Symptoms	Constipation, pain, itching, swelling, bleeding from the anus, burning, fecal incontinence, lumps and painful bumps near the anus, mucous secretion after defecation, incomplete evacuation of stool
	Etiology	Constipation, long-term straining, pregnancy, obesity, aging, hereditary, internal anal sphincter disorder, weak blood vessels and valves in the portal vein, standing position
	History of disease	Gastrointestinal diseases, childbirth and uterine problems, surgery
	Diagnosis	anal skin tag, anal polyp, peri-anal hematoma, rectal prolapse, anal fissure, dermatitis and rectal tumor
	Treatment option	Medicine, surgery

MDS is considered as a standard tool in data collection and processing for achieving effectiveness in health care. Designing a standard MDS is necessary to overcome data fragmentation among different health information systems. Determining the MDS of hemorrhoid disease in our study is an effective step for integrating the information of these patients in Iran, and provides the means to improve their information management. In fact, by determining the MDS for hemorrhoid disease, internal performance evaluations and comparisons can be made at the national and international level. By designing the MDS in accordance with the social and health conditions of the country, it is possible to store and retrieve the standard information of hemorrhoid patients in Iran. It can accelerate the process of creating specific hemorrhoid registries and facilitate the exchange of information between health systems.

## Ethical Considerations

### Compliance with ethical guidelines

This study was approved by the Research Ethics Committee at [Birjand University of Medical Sciences](#) (Code: IR.BUMS.REC.1401.068).

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### Authors' contributions

Methodology: Azam Sabahi and Hamidah Ehtesham; Writing the original draft: Azam Sabahi; Supervision: Azam Sabahi and Yousef Sadat; Conceptualization, writing, review & editing: All authors.

### Conflicts of interest

The authors contributed equally to preparing this paper.

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