



## Creation of the First Patient Information Database in Pelvic Floor Department

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**Abstract**

*Pelvic floor dysfunction is usually associated with impaired normal function and can includes range from a variety of conditions such as urinary incontinence (SUI), fecal incontinence, pelvic organ prolapse, lower urinary tract abnormalities, and fecal discharge. Pelvic floor dysfunction poses clinical challenges and increasing financial pressure in national health care. On the other hand, Electronic Medical Record (EMR) system is one of the most important items in the hospital information system and an essential technology to improve the quality of care. Therefore, it was decided to launch the electronic registration of patient information as a project.*

**Introduction**

Pelvic floor disorders are usually a continuing process of disease resulting from the loss of pelvic floor support (1). This dysfunction is usually associated with impaired normal function and can includes range from a variety of conditions such as urinary incontinence (SUI), fecal incontinence, pelvic organ prolapse and lower urinary tract abnormalities (2, 3). Although it is believed that these diseases mainly affect women, the ease of pelvic floor examination in women makes it easier to identify pelvic floor diseases than men. Also, anatomical differences in the size of the genital hiatus between the two sexes make women more susceptible to pelvic floor disease (1). Pelvic floor dysfunction poses clinical challenges and increasing financial pressure in national health care. Against rising public expectations, technological advances, rising prevalence of predisposing factors such as obesity, diabetes and increasing population age, it is predicted that in the next 30 years due to the demand for health care associated with pelvic floor dysfunction, current service capacity will increase up to 50% (4). Currently, about 20% of women undergo surgery because of urinary incontinence or aging, and about 30% require more surgery to relieve symptoms. Overweight and obese women, about two times more likely than women with body mass index, are prone to symptoms of pelvic floor dysfunction. Managing these patients often requires healthcare professionals and can be challenging (2). Many patients visit in the pelvic floor clinic every day, every month and every year and each patient has a lot of important information and it can be an important source of research. But because this information is not registered, they are wasted and we cannot use them in our research. On the other hand, a prerequisite for the provision of appropriate services is the existence of an efficient and effective information system because of the inaccessibility of accurate patient history and lack of adequate information, care for patients will not be ideal either. This problem is more obvious and more important in the clinic of pelvic floor disorders because of the chronicity of the patient's problem and the aging of most patients (5). Therefore, it was decided to launch the electronic registration of patient information as a project. The Electronic Medical Record (EMR) system is one of the most important items in the hospital

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information system and an essential technology to improve the quality of care (6, 7). EMR provides a record of the patient's clinical information, such as personal information, diagnosis process and care plans (6). The idea of computerized record of patient information was introduced in the 1960's and 1970's (8, 9). Likourezos and colleagues performed an EMR study to assess physician and nurse satisfaction in the emergency department. The result showed that emergency department physicians and nurses like the use of EMR (10). In another research the result showed a positive patient satisfaction with EMR (11).

The purpose of this study was to provide evidence with minimal missing data, evidence-based decision making and increased patient satisfaction.

## **Material and Methods**

### **Study Design**

Before starting this project, there was a paper file for each patient that was completed at the first patient visit and was archived in the clinic. In the next visits, the patient received the file by submitting the file number to the archive section, and the physician completed it and returned it to the archive. If the patient forgot the case number or the visit was carried out during the afternoon, when there was no access to the archives, the patient's visit was in great trouble. Various studies have shown that Paper-based Record can not sufficiently maintain the work of patient care in well-organized manner (5). If the patient had surgery, surgical information and patient follow-up should be entered manually in her paper file. There was a lot of missed data in every case.

In dealing with the problems (incomplete and missing paper files), it was decided to file an electronic record for patients in the pelvic floor clinic.

### **Method Description**

To create an electronic record, after Preparation Proposals and design process the following steps were taken:

- 1- Coordinate with a skilled person in the design of medical electronic records
- 2- Select the items required to be registered in the patient file
- 3- Dividing the items into two essential and optional section
- 4- Trial use of the prepared e-file and solving possible problems
- 5- Providing the necessary facilities for full use for all patient

#### **1. Coordinate with a skilled person in the design of medical electronic records**

In order to create a complete electronic record, we needed a skilled person to be able to do computer programs and programming as a member of the team. We talked with several active companies, and eventually we chose a skilled computer programmer who had done similar work in other parts of the hospital, such as the

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orthopedics department. We were able to use the experience of this person in his previous work, and this was a good help to reach our goals.

2-Select the items required to be registered in the patient file

We intended our electronic records to include this information:

### **A: Clinic**

- a. demographic information
- b. Patient complaints and main complaint
- c. The quality and quantity of each complaint
- d. Evaluation of pelvic floor symptoms including urinary symptoms, gastrointestinal symptoms, prolapse symptoms, pain and sexual function
- e. History of treatments performed for pelvic floor, including pharmaceuticals, physiotherapy, surgery, etc.
- f. Medical and surgical history of the patient for problems other than pelvic floor
- g. The result of the patient's examination includes General and Pelvic examination
- h. Para clinical results include: Lab data, ultrasound, Urodynamic study, Pap smear, etc.
- i. Initial diagnose and initial plan
- j. Follow up

### **B: Surgery**

- a. Pelvic floor distress inventory (PFDI20) questionnaire
- b. Type of surgery
- c. Surgeon
- d. Complication
- e. Post operation event

### **C: Followup**

- a. Patient Global Impression (PGI) questionnaire
- b. VAS for symptom improvement
- c. Complication

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d. New symptoms

e. Follow up

Pelvic floor diseases affect the quality of life, and improving the quality of life and patient satisfaction is one of the main goals of treatment. Many questionnaires on pelvic floor disorder were designed that PFDI20 (Pelvic Floor Distress Inventory) which includes 6 questions of urinary symptoms, 6 questions of prolapse symptoms and 8 questions of bowel symptoms, was filled before surgery for all patients and it was decided that this is necessary, the program would be able to add a questionnaire for various condition.

PGI is a standard questionnaire used after surgery to assess patient satisfaction and includes a question and 5 Likert criteria for patient satisfaction.

We develop a self-made questionnaire for follow up patients in post operation period in follow up clinic, and assess the patient signs and symptoms by it. We add this questionnaire to patient electronic file, and fill it in every post operation visit.

### **3. Dividing the items into two essential and optional options**

To reduce the missing information, the information that should be essentially completed for the patient was placed in mandatory fields to reduce the error rate of the operator, and if these fields are not completed, the program does not enter the next field. However, we selectively complete the unnecessary information or information that is still unavailable (such as Lab data).

### **4. Trial use of the prepared e-file and solving possible problems**

We reviewed the program carefully and used for patients with different conditions. We found many problems during the work that we resolved them. One of the problems was the time consuming completion of the paraclinical information and lab data for the physician that visited the patient, but there was a problem with the paper file too. Of course, in the paper file that often filled up by students, many of this information was not completed. To solve this problem, it was decided that these time-consuming parts would be filled by the secretary. We also put some questions that answered "Yes / No" as "No" so that the person completing can change the positive cases and increase the speed of the work.

### **5. Providing the necessary facilities for full use for all patient**

The pelvic floor Clinic bought a private server for implementing the system, and bought tablets for use by students and doctors at the clinic.

Implementation of an Example

By entering the information of each patient, the designed system provides a history report that is text-based; also all information is available in Excel format for research purposes (Table 1).

**Table 1.** Implementation of an Example. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
FinalSSQ8	516	.00	100.00	82.2028	20.79204
PGI	516	1.00	7.00	1.9748	1.19276
Valid N (listwise)	516				

**Discussion:**

Today, the use of electronic medical records (EMRs) has become widespread, which is very helpful to research work. Evidence from the literature suggests that EMRs can improve practice by providing point-of-care information to assist clinical decision-making (11). Information technology (IT) has the capability to develop the value, security and performance of health care. Healthcare is a huge and growing industry that is experience key alteration in its information technology base (12). On the other hand, Pelvic floor dysfunction poses clinical challenges and increasing financial pressure in national health care (4). Hence, The Electronic Medical Record (EMR) system was performed about Pelvic floor dysfunction and patient satisfaction.

Liu and colleagues, in a recent review article have expressed that patient satisfaction can be defined as the health care recipient's response to aspects of the context, process, and outcome of the service experience. Satisfaction is the patient's judgment of the care provided to them. They stated that patient satisfaction based on EMR is a complex process (10).

We think we should try to learn from each patient and can use from information of all patient in our research. For this goal, every department of a hospital needs to have a specialized EMR and we ought to use EMR and extend its use in all clinics and hospitals for have a pool data and it ought to be classified for easy use. This data can help health provider and they can see problems and their prevalence easier and guide them for better decision (13, 14).

These data could be used to improve quality of care, especially chronic disease management (15). EMR is very important in teaching center (16, 17, 18). Keenan and colleagues, in a recent review article described that residents were satisfied with electronic medical records for a number of reasons: easy access of clinical data, legibility of notes, improved problem lists and medication lists, better preventive care documentation, and reduced medical errors (19). EmranRouf said in their study third year medical students reported generally positive attitudes towards using the EHR in the ambulatory setting (20). SaimaNisar in a study report that a

few medical institutions may actually be concerned about long-term access to electronic records (21). Ghandari and colleagues demonstrated successful use of EMR in the pelvic floor department as well as ability to use the registration system to categorize data (6). Likourezos and colleagues showed that emergency department physicians and nurses like the use of EMR. Also they reported that it is easier to enter, access, and read data with EMR. Although the both physicians and nurses believed that EMRs still could not improve the quality of care, could not reduce costs, did not reduce waiting times, and did not reduce the number of laboratory tests (9).

The important issue of the present study is to provide a useful report on a new information technology solution. Research has shown that many of these morbidity and mortality can be targeted and reduced by electronic awareness programs and strategies (22 , 23). In general, follow-up of pelvic diseases reduce the time of diagnosis and improves the quality of care during treatment(6, 24). Finally, it is suggested that the method used in the current research be incorporated into the treatment plan in a virtual and practical way and use the variables considered in the questions as a template.

### **Conclusion:**

To improve the quality of care and patient satisfaction, it was decided to launch the electronic registration of patient information as a project. We design a special patient information record software for pelvic floor clinic and we hope this EMR can help us to better education, better research and better healthcare.

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