

## Pattern of the Medical Conditions of Patients in the Dental Hospital of Faculty of Dentistry, Universitas Indonesia

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### Abstract

A dental record is required to obtain the health information of patients. Data on the medical conditions of patients are needed for dental treatment modifications and for providing insights into possible oral health problems.

This study aimed to describe the pattern of the medical conditions of dental patients in Universitas Indonesia Dental Hospital (DHUI) in 2016.

Data from the medical records of new patients who visited DHUI from January 2016 to December 2016 were collected. Each patient's medical history was recorded. Incomplete medical records were excluded from the study.

Among the 4649 medical records of patients who visited DHUI in 2016, only 1820 (39.1%) were new. Only 1631 (89.6%) medical records were included in the study. Of the 1631 patients, 586 (35.9%) had medical conditions, the most common of which was allergies (n = 215), followed by gastrointestinal abnormalities (n = 190) and cardiovascular abnormalities (n = 77). Duration, drug consumption, and latest medical condition were the most common medical-related information that was obtained.

This study found that the obtained information about the patients' medical conditions was not detailed, warranting the modification of the DHUI patient medical record form.

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### Introduction

The pattern of the patient's medical illness can affect oral health conditions. Systemic diseases, such as anemia, gastritis, and cardiovascular diseases, may affect the health of the oral cavity.<sup>1</sup> In addition, the patient's medical condition could influence dental treatments, such as implant treatment, periodontal treatment, use of anesthesia, drug administration, and surgery.<sup>2,3</sup>

Dentists are obliged to obtain complete medical information from their patients before providing health services.<sup>3</sup> However, several dentists are concerned little about recording the

actual health status of patients in their dental records,<sup>4</sup> leading to errors in providing care. Records containing information about the dental and oral health status of patients are official documents that disclose all diagnostic information, clinical records, treatments, and all other procedures performed in the dental clinic.<sup>4</sup> Well maintained medical records with complete patient information are important for clinical treatment and ethical risk management. An integrated medical record about systemic conditions and oral and dental health is needed to establish information standards about a patient's health and the possible association between diseases. Considering patient safety as the utmost priority, a medical record helps prevent providing services that are contraindicated to the patient's medical condition. An integrated medical record can provide more transparent information and help reduce providing erroneous care.<sup>4</sup> Medical records with information about a patient's dental and oral health status can also be used for forensic

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purposes, as well as in teaching and research.<sup>5</sup>

Dental records have several components that can vary in several countries, which include major complaints, disease history, oral evaluation, treatment plan, informed consent, and progress notes.<sup>6,7</sup> Information obtained from patients is recorded in the standardized form or electronic-based medical record.<sup>8</sup> Dental medical records can be supplemented with referral letters, consultation reports, clinical photos, specific examination results, and comprehensive medical history.<sup>6</sup> The dentist's first meeting with a patient is crucial to determine an approach that will help establish rapport. An assessment must be performed by the dentist to identify if a patient has medical conditions, which are either expressed in words or are actually observed by the dental professional.<sup>8,9</sup> Information about the patient's medical history can be related to diagnosis and treatment. History of systemic diseases can accurately reflect the past and current health status of a patient<sup>4</sup> and can be used as the initial data for examining the patient's systemic conditions, and an evaluation of treated or untreated medical conditions, such as organ dysfunction, inflammation, infection, metabolic problems, and neoplasms, is carried out.<sup>6</sup>

The literature has shown more than 120 types of systemic diseases that may affect the oral cavity, and vice versa.<sup>4</sup> The disease can be associated with nutritional disorders, cancer, xerostomia (dry mouth), pneumonia, bacteremia, emphysema, brain abscess, liver disorders, diabetes, complications of surgery, and death. Gingival disease can be related to premature birth, and infected tooth tissue can cause periodontal diseases, which can affect the neck, eyes, and brain. Oral diseases can increase the risk factors for chronic diseases, such as cardiovascular diseases, diabetes mellitus, and respiratory diseases.<sup>4</sup> Consultation with a general practitioner is required to help manage patients with systemic health problems. Furthermore, a dentist can provide appropriate treatment modifications. For dentists, the target concept is to provide care to patients with health problems with consideration of safety and effectiveness.<sup>8</sup>

As published in 2016, the prevalence of systemic diseases in Indonesia based on the 2013 Riskesdas survey at hospitals throughout Indonesia included the following: acute respiratory diseases, 25%; tuberculosis, 0.3%;

hepatitis, 0.2%; digestive diseases, 3.5%; diabetes mellitus, 2.1%; hypertension, 25.8%; coronary heart disease, 1.5%; and kidney diseases, 0.2%.<sup>10</sup> Previous research has shown that the prevalence of systemic diseases in the population visiting dentists reached 32.5%, which include coronary heart diseases (5.8%), gastrointestinal diseases (5%), glandular diseases (4.7%), allergies (3.4%), internal diseases (3.1%), and kidney diseases (2.4%).<sup>11</sup> However, there has been no Indonesian research on the pattern of patients' medical conditions visiting dentists.

Therefore, in this study, the researchers aimed to assess the pattern of patients' medical conditions in the Dental Hospital of the Universitas Indonesia Faculty of Dentistry (DHUI). The information thus obtained will be used as preliminary data for evaluating medical records that might be used as a basis for improving the quality of dental health services at DHUI.

## Methods

This study was approved by the Research Ethics Committee of the Faculty of Dentistry Indonesia. This was a descriptive study that recorded and analyzed patients' medical history at DHUI in 2016 by using patients' medical records of dental and oral health status. The study was conducted from August 2016 to November 2016 in the medical record data room of DHUI. Secondary data regarding sociodemography, patterns of medical conditions, nosological classification, and information related to medical conditions were obtained from DHUI patients' medical records. Nonexistent and incomplete medical records were excluded from the study. Data were used for a descriptive analysis of the patient's medical condition and information related to DHUI in 2016.

## Results

Data on the number of patients were obtained from the manual data in books recorded by the administration officers of DHUI. Among the 4649 medical records of patients who visited DHUI in 2016, 1820 (39.1%) were new patients. Of these, 1628 (89.4%) medical records were included in the study. Patients younger than 12 years were excluded from the study.

The number of female participants (61.5%) was higher than that of the male participants. The study participants were aged 12–82 years, with a mean age of 32.46 years. The number of patients (681 [41.8%]) in the late adolescence group (age, 17–25 years) was the highest compared with other age categories. The sociodemographic data of the 1628 new patients in DHUI are shown in Table 1.

Variable	N (1628)	Percentage (%)
<b>Gender</b>		
Male	627	38.5
Female	1001	61.5
<b>Age (years)*</b>		
12–16	62	3.8
17–25	681	41.8
26–35	354	21.7
36–45	196	12.0
46–59	240	14.7
>60	95	6.0
<b>Education</b>		
Primary school	45	2.8
High school	648	39.8
Diploma	28	1.7
Bachelor degree	691	42.4
Postgraduate	92	5.7
Unknown	124	7.6
<b>Occupation</b>		
Government employee	119	7.2
Private	457	28.0
Retired	46	2.7
Students	248	15.2
Housewives	88	5.4
Others	670	41.5

**Table 1.** Sociodemographic profiles of 1628 new patients in DHUI in 2016

Based on the assessment results of the medical records, only 586 out of 1628 new patients had a history of systemic diseases. The information was obtained from the identification sheet filled by the patients and operators. The type and distribution of medical condition according to the nosology of the diseases are shown in Table 2.

Medical conditions	Frequency	Percentage (%)
Allergy	215	36.7
Cardiovascular diseases	77	13.1
Musculoskeletal disorders	0	0
Genitourinary disorders	5	0.8
Blood disorders	6	1.0
Endocrine disorders	27	4.6
Psychiatric disorders	0	0
Respiratory disorders	30	5.1
Gastrointestinal disorders	190	32.4
Neurological disorders	2	0.3
HEENT ( <i>Head, Eye, Ear, Nose, and Throat</i> ) disorders	0	0
Pregnancy and lactation	11	1.9
Others unspecified	24	4.1
Total	586	100

**Table 2.** Distribution of the medical condition of 586 new patients in DHUI in 2016.

## Discussion

This was a descriptive study that used secondary data from the medical records of the patterns of the medical conditions of patients and information related to patients based on the general medical records of patients in DHUI from January 2016 to December 2016. Medical conditions and information on systemic diseases could be identified on the completed registration sheet filled by the patient (operator identification) and the general medical record sheet filled by the operator (patient identification).

Medical records used in DHUI contain the patient's personal data, medical history, intra-oral and extra-oral examination results, odontogram results, OHIS assessment sheet, findings about clinical problems, treatment plan, and clinical supervisor's approval sheet. This medical record format is in accordance with the medical record requirements of the Indonesian Medical Council, which recommends that medical records need to have at least patient identity, physical examination, diagnosis, treatment, and other services provided to the patient. However, according to Carnio et al., there are differences in the nosology of the disease, which is found in the disease history sheet used for periodontal treatment.<sup>12</sup> The classification of disease is important in determining the relationship of the drug used or the possibility of interaction in the oral cavity and periodontal tissues.

Age grouping in this study was based on the classification used by the Ministry of Health,

Republic of Indonesia.<sup>10</sup> This study found that the age of patients in the late adolescence group had the highest number of patients (691 [42.4%]). The last level of education of patients who obtained Bachelor's degree is more than those who obtained other education levels. However, a gap in the education of patients who reached postgraduate level was observed.

A total of 586 patients had a history of medical disorders. Allergy was the most common type of medical condition (36.7%). The second most common medical condition was gastrointestinal disorders (32.4%), followed by cardiovascular disorders (13.1%). Modification of dental care in patients with cardiovascular disorders included visit time, type of antibiotics used, and administration of anesthesia, particularly in the administration of epinephrine. Furthermore, psychiatric and musculoskeletal abnormalities were not found in these patients. This is not in accordance with the research conducted in Qayzin University, India, which showed a prevalence rate of 32.5% for systemic diseases, including coronary heart disease (5.8%), gastrointestinal diseases (5%), glandular disease (4.7%), allergies (3.4%), internal diseases (3.1%), and kidney diseases (2.4%), in the population visiting dentists.<sup>11</sup> However, this study assessed for differences in patient conditions, sociodemography, and disease trends between countries. Patients with a more complicated systemic/medical condition are more likely to visit dental clinics in the hospital where they are usually treated. Based on the 2013 Riskesdas, the prevalence rates of systemic diseases were as follows: acute respiratory diseases (25%); tuberculosis (0.3%); hepatitis (0.2%); digestive disease (3.5%); diabetes mellitus (2.1%); hypertension (25.8%); coronary heart disease (1.5%); and kidney disease (0.2%).<sup>10</sup>

Allergic diseases were mostly reported to have been caused by allergic foods, such as seafood. Only one patient had a description of the duration of allergy occurrence. Detailed information includes a history of drug use and general health questions.<sup>3</sup> Description of other allergies in 168 (78.1%) patients includes causes of allergies, such as food, medicine, rhinitis, air/cold, and dust. Allergy symptoms can sometimes be frightening for patients during a dental visit, and the dentist must pay more attention to these symptoms, which can include

symptoms in the oral cavity and can cause fever. Concern regarding the allergy symptoms of patients will help in supporting diagnosis and treatment as an initial measure to reduce the risk of allergies during treatment.<sup>13</sup>

Data on the history of cardiovascular disorders were obtained from 61 patients with high blood pressure and 16 patients with heart disease. Data about systemic diseases could be obtained only from 20 (26%) patients. This shows that several operators do not obtain more information about cardiovascular disorders. Patients with cardiovascular diseases require antimicrobial agents to prevent infectious endocarditis or perhaps anticoagulant-induced bleeding.<sup>14</sup> During dental care, the use of anesthesia in patients with cardiovascular disease can be modified.<sup>14</sup>

From the DHUI medical records, genitourinary abnormalities were found in 5 patients, with 80% related information. Patients with kidney disease can cause bleeding and disruption of drug excretion. During dental care, it will affect the metabolism of drugs, such as immunosuppressant drugs and those for hepatitis, bleeding, hypertension, and heart failure, which must be considered in providing care.<sup>15</sup> Sexually transmitted diseases, such as syphilis, gonorrhoea, and HIV/AIDS, can manifest in the oral cavity due to genital or blood contact. A dentist must identify the condition to provide treatment without causing cross infection via the blood or salivary fluid.<sup>16</sup>

Anemia was found in several patients. During dental treatment, this will affect the dental treatment actions, which may be contraindicated to general anesthesia and can cause oral complications, such as candidiasis, mouth sores, burning tongue, glossitis, ulcer, and angular stomatitis. Endocrine disorders were observed in 27 patients. Diabetes mellitus can cause hypoglycemia with oral complications, such as sialosis, dry mouth, and periodontal damage.<sup>17</sup> Other endocrine diseases other than diabetes include hyperparathyroidism, which can cause radiolucency tissue, loss of lamina dura, giant cell granuloma, hypercalcaemia, and glaucoma. Thus, complete additional information about endocrine disorders is required to determine dental treatment modifications.<sup>17</sup>

Respiratory abnormalities were found in 30 patients. It is recommended that more detailed information about the patient's latest

medical condition, such as the incidence of asthma, be obtained. Because asthma can be triggered by several factors, such as stress, dentists must make minimal movements that can cause panic or stress and keep an inhaler handy for emergency situation.<sup>18</sup>

Several patients were found to have gastrointestinal disorders, such as gastritis. Gastrointestinal abnormalities are associated with vomiting reflexes in a patient who is on general anesthesia and can cause oral problems due to low pH and selection of drugs that can cause gastric pain.<sup>19</sup> Drug choice for the treatment of dental problems should also be monitored.

In addition, neurological disorders, such as epilepsy, were found in the medical records. Dental treatment in patients with epilepsy and seizures must focus on triggers that can cause attacks, including lamp and sound shock. In addition, several drugs used for the treatment of seizures and epilepsy can cause oral cavity problems, such as gingival clots. Drugs that can be used include phenytoin, carbamazepine, valproic acid, and lamotrigine. Other neurological diseases can include needle and migraine injuries. The symptoms are dizziness, headache, convulsions, and tremors.<sup>20</sup>

Pregnancy and lactation were observed in 11 patients. Information regarding such conditions is important. It is important to consider the possibility of miscarriage or teratogenicity in pregnant patients. The use of drugs, radiographic examinations, and infections must be prevented in pregnant women during the first trimester, or less exposure from these should be observed. During pregnancy, conditions such as aphthous stomatitis, Behcet syndrome, gingivitis, and epulis can be observed.<sup>21</sup>

The results of the present study showed that the obtained information about a patient's medical condition is still insufficient in terms of data about the actual condition of the patients. The current form used in DHUI requires the operators to be highly skilled in obtaining the medical history or additional information of the patient. Insufficiency in the obtained data may be because the form is too general, which results in multi-interpretation by patients and operators. Dental practitioners must obtain a detailed medical history before initiating any dental treatment or providing therapeutic regimens. If the condition is unnoticed, it would lead to unfavorable outcomes.<sup>3</sup> The patients need a

certain level of awareness and knowledge of the symptoms or illness that they may experience. A high patient awareness can be influenced by health literacy. In other words, a patient can understand the importance of maintaining his/her health condition and can analyze medical conditions.

## Conclusions

This study found that 586 (35.9%) patients had medical conditions, the most common of which was allergy (n = 215), followed by gastrointestinal abnormalities (n = 190) and cardiovascular abnormalities (n = 77). The most commonly asked medical information includes duration, drug consumption, and latest medical conditions. Information about the medical conditions of patients was not extremely detailed, and data in the medical records were still insufficient. Thus, dental practitioners must obtain a more detailed medical history before initiating any dental treatment or providing therapeutic regimens.

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## Declaration of Interest

The authors declare that there are no conflicts of interest.

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