WAITING TIME FOR OUTPATIENT HEALTHCARE SERVICES AT THE OUTPATIENT DEPARTMENT OF DUC GIANG HOSTPITAL IN HANOI 2018 AND ASSOCIATED FACTORS

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A cross-sectional study was conducted in 212 patients attending the Outpatient Internal Medicine Department of Duc Giang Hospital to describe the waiting time for outpatient healthcare services in Hanoi 2018 and associated factors. The results indicated that the mean waiting time from arrival to diagnosis was quite long at 142.93 ± 129.18 minutes. There were statistically significant differences in the total waiting time spent in patient's hospital by types of health insurance, by sesssion, by days and by clinics. The factors related to the waiting time of the patients are the type of health insurance (yes vs. no), age groups (adults vs. younger and elderly), gender (women vs. man), time (morning vs. afternoon) and date (weekdays vs. weekend). Women, adults, have health insurance and utilized health services in the morning and weekday are more likely to have longer waiting time than other groups. This study suggests that to reduce waiting time among patients, it is important to improve health services in the area with health insurance, in the morning and weekdays.

I. INTRODUCTION

To improve the quality of medical examination and treatment and patient's satisfaction are the core vision of all hospitals. Theoretically, patient's satisfaction is influenced by many factors such as expectations, health conditions, individual characteristics and the characteristics of each nation's health system. Among them, the waiting time and duration of the medical examination are the two of the most influential factors affecting patients' satisfaction [1].

Measuring patient waiting time is important.

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It is defined as "the total time that a patient spends to receive a particular service since entering a health facility until stepping into the examination room to see a doctor in person." [2 - 4]. Researching prior reports, we found a number of studies that identified issues associated with waiting time among patients. Almomani and his colleagues (2016) showed that the waiting time and patient satisfaction in a Canadian Orthopedic Hospital in 2013 was 126.7 ± 46.5 minutes. The shortest waiting time to be seen by the doctor was 15 ± 9.7 minutes [5]. Their study also indicated that there is no relationship between waiting time with other characteristics like age, sex, ethnicity, type of injury as well as patient's health [5]. Mohebbifar (2014) studied 160 outpatients in a hospital reported that the average waiting time in the

clinic was 161 minutes. The length of waiting time for ophthalmology was the longest averaging 245 minutes, and the shortest waiting time was in the orthopedic department averaging 77 minutes [6]. In Vietnam, although a number of studies have investigated patients' satisfaction with health services, few have been done on waiting time. There was only one study done at Hadong Hospital, Hanoi in 2014 - 2015; the total longest waiting time for examination including testing was 108.33 ± 73.84 minutes and the shortest was examination only (without testing) was 26.2 ± 15.77 minutes. A significant difference was observed between crowded days and light days and between clinics and between patients with and without health insurance. However, this study and other studies on this topic did not examine factors associated with waiting time among patients.

Duc Giang Hospital, with 53 years of experience, has became a first class hospital since 2011. This is the trusted hospital of the residents of Long Bien district, Gia Lam district and neighboring provinces like Hung Yen, Bac Ninh, and Bac Giang [7]. The hospital has 33 clinics with 44 examination tables, 01 health insurance room, 01 health insurance dispensary and 07 reception desks. The average number of patients presented at the Faculty was 1,200 patients / day. To evaluate the effectiveness of the improvement of the procedure and to propose further measures to increase patient satisfaction by reducing their waiting time, we carried out this current study with two objectives: 1) Describe the waiting time for outpatient health care services of patients at the Outpatient Internal Medicine Department of Duc Giang Hospital in 2018 and 2) Analyze the factors associated with the waiting time among such patients in Duc Giang Hospital.

II. METHODS

1. Subjects

Patients attending the Outpatient Internal Medicine Department of Duc Giang Hospital who volunteered to participate in this study.

2. Methods

Design, methods and sampling: This is a cross-sectional design using quantitative method, face to face interview and data from database of Duc Giang hospital. The sample size of the study was calculated according to the following formula.

$$n = Z^2_{(1-\alpha/2)} \frac{s^2}{(X\varepsilon)^2}$$

In which n is the research sample size; X is the average time taken from pilot research; s is the standard deviation calculated by our pilot study; ε is the relative deviation between the sample parameter and the population parameter (ranging from 0.05 to 0.5 typically from 0.2 to 0.3); Z2 (1-α/2): is the confidence interval dependent on the statistically significant. Total sample size n = 16 * 12 = 192. We included 10% extra in case of inadequate information, so approximately 212 patients were sampled. The pilot was conducted in January 2018 in 20 randomly selected patients at clinics on Monday. The results of the pilot showed that the average total examination time of a patient in the clinic was 221.5 ± 66.6 minutes.

Data collection: Data collectors were trained to collect the data. They approached and explained the objectives and key contents to the patients . The collaborators then followed the patient and recorded the time of each examination. We also gathered available information from the medical record file. We also observed procedures for medical examination and treatment, and medical equipment. The data collection took over three months.

Data Analysis: Data was input into the computer and processed by Microsoft Excel

2010. The data was then transferred and analysed by using SPSS software 23.0. Descriptive statistics (mean, mode, median, number, %, range, standard deviation, so on) were used for objective 1. For the second objective, the multivariate regression method with p level <0.05 was deployed to examine factors associated with waiting time of outpatients.

3. Research Ethics

The participation was completely voluntary. Participants were informed of the purposes and contents of the survey. They can stop or withdraw at any time during the survey as they wish. The name of the participants and their health insurance ID was not mentioned in the research. The study was approved by Duc Giang Hospital and the scientific panel of the Institute for Preventive Medicine and Public Health.

III. RESULTS

In table 1, 58% of respondents with health insurance were from 18 to less than 29 years old (45.2%), most walk- in for health services (81%), while few were referred by the health system (1%). Fewer patients were accompanied by their relatives (45%) than those who came alone (55%).

Table 1. Personal characteristics of the research subjects (n = 212)

Characteristic (n = 212)		n	%
Form of service used	With health insurance	122	58
	Without health insurance and with fee	90	42
Age group	Less than 18	23	10.8
	18 -< 29	96	45.2
	29 - 49	72	34
	Greater than 50	21	10
Referral	Walk in	172	81
	Lower level	39	18
	Refer by Staff of hospital	1	1
Accompany	With accompanying	96	45
	Go alone	116	55

As seen table 2, in general, the average waiting time in the morning of all of clinics was statistically significantly higher than in the afternoon (p ≤ 0.05). However, the differences in figures in osteoarthritis, Internal endocrine and kidney were not statistically significant (p > 0.05).

Table 2. The waiting time by clinic

Specialized clinics	N (212)	Morning	Afternoon	p (Mann-Whitney test
Outpatient Internal Medicine Department	61	196.05 ± 141.5	60.81 ± 44.6	0.0036
Pediatrics	33	246.18 ± 138.65	88.45 ± 43.59	0.0181
Internal osteoarthritis	35	134.36 ± 91.78	73.14 ± 45.19	0.517
Internal endocrine and kidney	4	281 ± 30	55 ± 42	0.253
Neurology	16	143.60 ± 146.83	51.75 ± 31.75	0.0023
Cardiology	14	232 ± 155.65	99 ± 30.10	0.0052
General internal medicine	14	127.43 ± 129.79	63.43 ± 40.85	0.0012
Infectious diseases	17	101.87 ± 99.56	46 ± 30	0.0031
Oncology	18	270.20 ± 150.51	80.6 ± 49.36	0.0043

*The significance level was set at $p < 0.05$.

The average waiting time was presented in table 3. As seen, the average waiting time since the patient register for health check to the point the end of the examination was 142.93 ± 129.18 minutes. There was a special case that the maximum waiting time was 511 minutes.

Table 3. Average waiting time

	Average	Standard deviation	Median	Mode	Min	Max
Total average waiting time (minutes)	142.93	129.18	112.50	23	8	511

As indicated from table 4, five variables were significantly associated with the outcome variable, the total waiting time at the Outpatient Internal Medicine Department. Age groups, day sessions and health insurance were significantly and positively associated with the dependent variable (Beta=0.442, P<0.01). The R-squared adjusted reflected the total of 17.8% of these factors effect on the total waiting time of the Outpatient Internal Medicine Department. The VIF value of all independence variables less than 2 means no multicollinearity.

Table 4. Factors related to total waiting time at the Outpatient Internal Medicine Department

Independent Variables	Total waiting time at the Outpatient Internal Medicine Department	
	Standardized regression coefficients (beta)	Index of model fit
Healthcare Insurance	0.120 **	
Age Group	0.046 *	
Days in week	-0.234 *	Adjusted R2 = 0.178
Sex	-0.067*	F-test = 3.597***
Day sessions	0.442**	

*Note: *p < 0.05; **p < 0.01; ***p < 0.001*

IV. DISCUSSION

The study shows a number of interesting results. First, significant differences in the waiting time between characteristics are found. The number of patients visiting the clinic with health insurance coverage is higher than that with self-pay and self-charge. The main reason is that Duc Giang General Hospital is a large city-level hospital providing a wide range of health care services to its residents and neighboring area. This led to the finding that 81% of the 172 patients surveyed reported that they were self-referrals, the rest were from lower level hospitals and by mass organizations. Another important difference is that respondents tend to access the examination in the morning rather than in the afternoon due to the ease of receiving the result. The waiting time is also different by clinics. This difference can be related to the workload, the test ordered and further examination, etc. The results are similar to that of Le Thanh Chien and colleagues at Truong Vuong Hospital in 2011.

In terms of the factors associated with the waiting time among the patients, we detect that there are a number of variables that could affect the total waiting time of patients at different departments. Factor such as the patients visiting for medical or health check in the morning is significantly and positively associated with the total waiting time among almost all departments. The result is also similar to another study in Vietnam by Suong et al (2018) showing that people visiting the hospital from 5.30 to 7.30 am time frame had longer waiting time than the rest of the day [8]. This could be explained by the fact that most people and patients in Vietnam prefer visiting early in the morning than other time slots of the day. In the Kidney and urology department, as the obtained sample size was too small, we were unable to perform linear regression procedure on this department. At some departments, the length of time that a woman was diagnosed was somehow longer than that of a male patient. This view was shared by a study in the USA by Tamar et al [9]. This might be due to the different functions

across specialties. Patients were more likely to spend more time visiting a gynecologist and an ophthalmologist than those who visited psychiatry and dermatology department [10]. In terms of the age of patients, apart from priority given to the elderly, it seems that adult's waiting time is longer than that of younger ones, because adolescent and children usually have priority to receive health check.

This study may be accompanied with some limitations. As this study is cross-sectional design in nature, it may not be certain to confirm the temporal relationship between factors and the dependent variable. Future research should use longitudinal or intervention design to further investigate this relationship. Time measurement based on patient follow-up, examination time and waiting time is the most accurate, but it is most unlikely to be manpower and inadequate resources. However, this study is also one of the first studies examining the waiting time of the examination, giving directions to further research.

V. CONCLUSIONS

The mean waiting time among patients from arrival to diagnosis is quite high (142.93 ± 129.18 minutes). There are statistically significant differences in the total waiting time spent in patient's hospital by types of health insurance, by session, by days and by clinics.

Five factors related to the waiting time of the patienst include the type of health insurance (with vs without), age groups (adults vs. children and elderly), gender (women vs. man), time (morning vs. afternoon) and date (weekday vs. weekend). Patients who are women, adults, have health insurance and utilized health services in the morning and weekday are more likely to have longer waiting time than the rest.

REFERENCES

1. **Ford, Robert C. & Bach, S. (2013).** Methods of evaluating patient satisfaction according to the World Health Organization. 12/03/2013 [cited; Health strategy and Policy institute: Available from: http://www.hspi.org.vn/vcl/PHuoNG - THuC - daNH - GIa - Su - HaI - LoNG - CuA - NGuoI - BeNH - THEO - To - CHuC - y - Te - THe - GIoI - t101 - 8023.html (accessed by 12 July 2019).

2. **Dansky, K.H., Miles, J. (1997).** Patient satisfaction with ambulatory healthcare services: waiting time and filling time. *Hospital and Health Service Administration.* **42(2),** 165 - 177.

3. **Bar - dayan, Y., Leiba, A. & Weiss Y, et al. (2002).** Waiting time is a major predictor of patient satisfaction in a primary military clinic. *Mil Med.* **167(10)**, 842 – 845.

4. **Musinguzi, C. (2013).** Patient waiting time and associated factors at the Assessment Center, General out - patient Department Mulago Hospital Uganda. *Makerere University.*

5. **Almomani, I. & AlSarheed, A (2016).** Enhancing outpatient clinics management software by reducing patients' waiting time. *Journal of Infection and Public Health.* **9(6),** 734 - 743.

6. **Mohebbifar, R. & Hasanpoor, E.,**

Mohseni, M. & Sokhanvar, M. (2014). Outpatient Waiting Time in Health Services and Teaching Hospitals: A Case Study in Iran. *Global Journal off Health Science.* **6(1),** 172–180.

7. **Duc Giang Hospital. (2017).** Basic information of Duc Giang Hospital, available at http://benhvienducgiang.com/gioi - thieu - chung/thong - tin - co - ban - ve - benh - vien - da - khoa - duc - giang/144 - 648 - 256.aspx.

(accessed by 12 July 2019).

8. **Nguyen, S.T.T., Yamamoto, E., Mai, N.T.N., Huy, L.B., Kariya, T., Saw, Y.M., Duc, N.C. & Hamajima, N. (2018)**. Waiting time in the outpatient clinic at a national hospital in Vietnam. *Nagoya Journal of Medical Sciences.* **80,** 227 – 239.

9. **Oostrom, T., Einav, L. & Finkelstein, A. (2017).** Outpatient Office Wait Times and Quality of Care for Medicaid Patients. *Health Aff,* 36(5), 826 - 832.