RESEARCH ARTICLE

Patient waiting time in the outpatient clinic at a central surgical hospital of Vietnam: Implications for resource allocation [version 1; peer review: 1 approved with reservations]

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Abstract

Background: Patient waiting time is considered as a crucial parameter in the assessment of healthcare quality and patients' satisfaction towards healthcare services. Data concerning this has remained limited in Vietnam. Thus, this study aims to assess patient waiting time in the outpatient clinic in Viet Duc Hospital (Hanoi, Vietnam) in order to enable stakeholders to inform evidence-based interventions to improve the quality of healthcare services.

Methods: A cross-sectional study was conducted from June 2014 to June 2015 in the outpatient clinic at Viet Duc Hospital. Waiting time stratified by years (2014 and 2015), months of the year, weekdays, and hours of the day were extracted from Hospital Management software and carefully calculated. Stata 12.0 was employed to analyze data, including the average time (M± SD), frequencies and percentage (%).

Results: There was a total of 137,881 patients involved in the study. The average waiting time from registration to preliminary diagnosis in 2014 was 50.41 minutes, and in 2015 was 42.05 minutes. A longer waiting time was recorded in the morning and in those having health insurance.

Conclusions: Our study highlights the essential need for human resource promotion to reduce patient waiting time. Also, attention should be paid to the simplification of administrative procedures in order to reduce waiting time among insured patients.

Keywords

Patient waiting time, outpatient clinic, Viet Duc Hospital, health insurance

Open Peer Review

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Any reports and responses or comments on the article can be found at the end of the article.

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Introduction

Although patient waiting time has been defined as an important indicator in the assessment of healthcare quality[1] and patients' satisfaction towards healthcare services[2,3], lengthy outpatient waiting time has posed a great challenge to maximize healthcare quality[4]. This issue is worse among countries with low provider-patient ratios[5], and Vietnam is among highly populated countries that are fueled by patient overload, especially in the central hospitals[6]. Thus, extended waiting time has remained highly prevalent.

Previous study suggests that appropriate operation of medical examinations could shorten patient waiting times[7]. In Vietnam, attention has already been paid to the assessment of the length of medical examination. In 2015, a study in Ha Dong General Hospital by Nguyen indicated the average time of medical examination was 96.91 ± 72.16 minutes. The average waiting time was 63.05 ± 62.96 minutes[8]. In 2012, a study by Le *et al.* conducted in outpatient clinic (Trung Vuong Emergency Hospital) suggested that the average time spent from registration to doctors' conclusions was 246.87 ± 104.55 minutes (4.11 ± 1.7 hours)[9]. Accordingly, patient waiting time is influenced by various factors, such as working procedure, patient overload and appointment schedule[10,11].

Viet Duc is a central hospital, with the aim of ensuring health for Northern Vietnamese patients. The outpatient clinic welcomes hundreds of patients on a daily basis and is often overloaded. Thus, Viet Duc Hospital is always seeking evidence-based solutions to enhance the quality of healthcare services. However, data on patient waiting time in the outpatient clinic at Viet Duc Hospital remains limited. Thus, the aim of this study was to examine patient waiting times in the outpatient clinic, Viet Duc Hospital, thereby enabling the hospital administration to design evidence-based interventions to improve the satisfaction of patients.

Methods

Study design and settings

A cross-sectional study was conducted from June 2014 to June 2015 in the outpatient clinic of Viet Duc Hospital (Hanoi, Vietnam). It is the largest surgical center of Vietnam, with approximately 1300 beds and approximately 150,000 patients using outpatient services annually.

Participants

All patients that underwent a medical examination during this time were eligible for the research. There were no specific exclusion criteria used in this study. Data from a total of 137881 patients were extracted for final analysis.

Data collection and measurements

Time data was collected via Hospital Management Software, which was developed to support hospital management in Viet Duc Hospital. Data concerning the waiting time for utilizing service was computed as the time that patients met the physicians minus the time that the patient registered. The waiting time for health service use was analyzed regarding years (2014 and 2015), months of the year, weekdays and hours of the day.

Statistical analysis

Data was cleaned and entered using Epidata 3.1. Stata 12.0 was employed to analyze data: the average time (M±SD), frequencies and percentage (%). Since we extracted data from the software, there was no bias in this study.

Ethical approval

The study was approved by the IRB of Viet Duc Hospital, Hanoi, Vietnam. Data collection procedures and the use of data for analysis were also approved by the directors of Viet Duc Hospital. No personal data concerning patients was collected in this study.

Results

Table 1 illustrates the average waiting time of patients in the outpatient clinic of Viet Duc Hospital. There was a total of 137881 patients who had a medical examination during the time of conducting the research, in which 38298 patients had health insurance, accounting for approximately 27.8%. The average waiting time from registration to preliminary diagnosis in 2014 was 50.41 minutes and in 2015 was 42.05 minutes.

Patient waiting time regarding the hours of the day are presented in Table 2. The largest number of patients having a medical examination were in the hours 7:00–8:00 and 8:00–9:00. The lowest number of patients having medical examination were in the hours 11:00–12:00, 15:00–16:00 and 16:00–16:30 (because the hospital was closed at 16:30). The longest patient waiting time was at

Table 1. Patient waiting time over a two-year period grouped by health insurance.

Year	Health insurance			No health insurance			Total		
	N	%	Waiting time (mins)	N	%	Waiting time (mins)	N	%	Waiting time (mins)
2014	26174	68.34	52.12	49192	49.40	49.51	75366	54.66	50.41
2015	12124	31.66	50.71	50391	50.60	39.96	62515	45.34	42.05
Total	38298	100	51.67	99583	100	44.68	137881	100	46.62

6:30 to 7:00, and the time among those having health insurance was 81.54 minutes, while the longest patient waiting time among those who did not have health insurance was 70.63 minutes.

Table 3 shows patient waiting time regarding weekdays. The largest number of patients having a medical examination was on Monday, Tuesday and Wednesday. There were fewer patients on Thursday and Friday. The shortest waiting time was on Thursday, while the longest waiting time was on Tuesday.

Table 4 demonstrates patient waiting time regarding the month of the year. Generally, few patients had medical examinations in February, 2015. The longest waiting time was in July, August, and September for both insured and uninsured patients.

Dataset 1. Raw data used in the construction of Table 1–Table 4

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Data from June 2014–June 2015 detailing waiting times of patients and if health insurance was present.

Discussion

The purpose of this study was to assess the patient waiting time in an outpatient clinic, Viet Duc Hospital, Hanoi, Vietnam. Our findings indicate that the average waiting time from registration to preliminary diagnosis was decreased in a period of two years from 2014 to 2015. Findings also suggest the difference regarding waiting time between the morning and the afternoon, those

Table 2. Patient waiting time regarding hours of the day grouped by health insurance.

Time	Health insurance			No health insurance			Total		
	N	%	Waiting time (mins)	N	%	Waiting time (mins)	N	%	Waiting time (mins)
6:30–7:00	3507	9.16	81.54	13704	13.76	70.63	17211	12.48	72.85
7:00–8:00	11498	30.02	60.95	26512	26.62	55.01	38010	27.57	56.80
8:00–9:00	10631	27.76	47.34	24506	24.61	38.48	35137	25.48	41.16
9:00–10:00	5238	13.68	40.84	15165	15.23	32.85	20403	14.80	34.90
10:00–11:00	2339	6.11	39.08	5891	5.92	30.06	8230	5.97	32.62
11:00–12:00	727	1.90	74.87	1418	1.42	60.21	2145	1.56	65.18
13:00–14:00	2177	5.68	34.32	6140	6.17	27.73	8317	6.03	29.45
14:00–15:00	1336	3.49	26.26	4304	4.32	20.56	5640	4.09	21.91
15:00–16:00	774	2.02	20.91	1743	1.75	24.71	2517	1.83	23.54
16:00–16:30	71	0.19	45.51	200	0.20	87.48	271	0.20	76.48
Total	38298	100	51.67	99583	100	44.68	137881	100	46.62

Table 3. Patient waiting time regarding weekdays grouped by health insurance.

Weekdays	Health insurance			No health insurance			Total		
	N	%	Waiting time (mins)	N	%	Waiting time (mins)	N	%	Waiting time (mins)
Monday	8655	22.60	52.38	23484	23.58	46.50	32139	23.31	48.08
Tuesday	9647	25.19	55.00	22931	23.03	46.91	32578	23.63	49.30
Wednesday	8123	21.21	48.89	19302	19.38	43.25	27425	19.89	44.92
Thursday	6440	16.82	47.98	16746	16.82	42.21	23186	16.82	43.81
Friday	5433	14.19	53.18	17120	17.19	43.22	22553	16.36	45.62
Total	38298	100	51.67	99583	100	44.68	137881	100	46.62

Table 4. Patient waiting time by month of the year grouped by health insurance.

Year	Month	Having health insurance			No health insurance			Total		
		N	%	Waiting time (mins)	N	%	Waiting time (mins)	N	%	Waiting time (mins)
2014	6	3585	13.70	52.45	6966	14.16	51.69	10551	14.00	51.95
	7	4212	16.09	59.23	8124	16.51	58.77	12336	16.37	58.93
	8	3417	13.05	57.79	6925	14.08	58.20	10342	13.72	58.06
	9	3524	13.46	57.93	6901	14.03	56.55	10425	13.83	57.02
	10	4078	15.58	53.50	7541	15.33	47.41	11619	15.42	49.55
	11	3667	14.01	42.19	6200	12.60	36.90	9867	13.09	38.87
	12	3691	14.10	41.23	6535	13.28	33.38	10226	13.57	36.21
2015	1	2042	16.84	47.47	7747	15.37	33.02	9789	15.66	36.04
	2	796	6.57	42.23	4574	9.08	33.93	5370	8.59	35.16
	3	2343	19.33	50.02	9986	19.82	37.72	12329	19.72	40.06
	4	2082	17.17	49.79	8557	16.98	39.93	10639	17.02	41.86
	5	2387	19.69	52.22	9271	18.40	43.40	11658	18.65	45.21
	6	2474	20.41	56.06	10256	20.35	47.00	12730	20.36	48.76
Total		38298	100	50.93	99583	100	44.45	137881	100	45.98

having health insurance compared to those that did not have health insurance.

The average waiting time was lower than previous studies at Ha Dong General Hospital (Hanoi City)[8], Trung Vuong Emergency Hospital (Ho Chi Minh city)[9], and Nguyen Trai Hospital (Ho Chi Minh City)[12]. However, our findings were higher than studies by Vu at the National Hospital of Tropical Diseases (Hanoi City)[7], and Cole in Australia[13]. It could be hypothesized that the outpatient clinic at Viet Duc Hospital is well-qualified (with skilled physicians and advanced medical technologies), patients directly come to the Hospital without visiting healthcare facilities at grass-roots levels, leading to overload. In fact, each department at the hospital receives approximately 130,000 medical visits every year; therefore, overload frequently happens. The study in Trung Vuong Emergency Hospital was conducted in 2011 when the decision 1313/QĐ-BYT related to the medical examination procedure was not implemented. Therefore, patient waiting time might be prolonged.

The higher number of visited patients in the morning and the afternoon observed in our study could be potentially explained since patients prefer to have health consultations in the morning, as they could receive the results of clinical tests within the day. A study by Han *et al* also indicated that the number of patients that visit An Giang Cardiovascular Hospital (An Giang Province) in the morning is higher than the afternoon[14]. Thus, our study highlights the essential need for human resources enhancement, especially in the morning. Besides, health care providers should be well-distributed appropriately to shorten patients' time of medical consultations.

Noticeably, those having health insurance had to wait for their turn longer than those that did not have health insurance. This may potentially reflect shortcomings regarding complicated administrative procedures that could extend waiting time[8]. In fact, cumbersome administrative procedures related to health insurance remain the pressing issue in Vietnamese healthcare system[15]. Moreover, the government has planned to move toward universal health insurance, where 80% of the total population are covered by health insurance and reduce out-of-pocket health expenses to under 40% by 2020[15]. Since this strategy may be hampered by health insurance-related procedures, stakeholders should pay attention on simplifying administrative procedures for insured patients.

Conclusions

Our results provided evidence for authorities and stakeholders to create future interventions, in order to enhance patients' satisfaction and the quality of healthcare services. Primarily, human resources promotion and distribution should be emphasized in outpatient clinics and health insurance-related administrative procedures should be simplified.

Data availability

Dataset 1: Raw data used in the construction of Table 1–Table 4. Data from June 2014–June 2015 detailing waiting times of patients and if health insurance was present. doi, 10.5256/f1000research.11045.d157112[16]

Author contributions

TDT, UVN, BXT conceived, designed and conducted the experiments; **TDT, UVN, VMN** collected the data; **TDT, UVN, BXT, VMN** analyzed and interpreted the data; **TDT, UVN, BXT, VMN** wrote the paper. All authors read and revised the manuscript.

Competing interests

No competing interests were disclosed.

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The paper is short and concise but the statistical test is too simple. The authors should use some bivariate analysis.

The discussion about "Moreover, the government has planned to move toward universal health insurance, where 80% of the total population are covered by health insurance and reduce out-of-pocket health expenses to under 40% by 2020. Since this strategy may be hampered by health insurance-related procedures, stakeholders should pay attention on simplifying administrative procedures for insured patients." could be not appropriate because this study has been conducted in a national-level hospital and it could not be refer to universal health coverage which should be provided at grassroot level (commune health station or district hospital).

Is the work clearly and accurately presented and does it cite the current literature?
Yes

Is the study design appropriate and is the work technically sound?
Yes

Are sufficient details of methods and analysis provided to allow replication by others?
Yes

If applicable, is the statistical analysis and its interpretation appropriate?
Partly

Are all the source data underlying the results available to ensure full reproducibility?
Yes

Are the conclusions drawn adequately supported by the results?
No

Competing Interests: No competing interests were disclosed.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 11 May 2017

Vuong Nong Minh, Duy Tan University, Da Nang, Vietnam

Dear Mr Duc,

Thank you very much for your comments. We would very carefully consider your feedback and revise our manuscript. We hope that our newest version makes you satisfy.

Sincerely,

Authors

Competing Interests: No competing interests were disclosed.