UNIVERSITI PUTRA MALAYSIA

OPERATION EFFICIENCY ANALYSIS OF THE
SMALL ANIMAL CLINIC,
UNIVERSITY VETERINARY HOSPITAL

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OPERATION EFFICIENCY ANALYSIS
OF THE
SMALL ANIMAL CLINIC,
UNIVERSITY VETERINARY HOSPITAL

By

LIM ZHI JIAN

**A FINAL YEAR PROJECT PAPER SUBMITTED IN
PARTIAL FULFILLMENT OF THE REQUIREMENT
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2015

CERTIFICATION

It is hereby certified that I have read this project paper entitled "Operation Efficiency Analysis of the Small Animal Clinic, University Veterinary Hospital" by Lim Zhi Jian and in my opinion it is satisfactory in term of scope, quality, and presentation as partial fulfillment of the requirement for the course VPD 4901 – Project.

…………………………………………………………………

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ACKNOWLEDGEMENTS

DEDICATION

Thanks to my family and friends, for the faith and

endless care they give me.

Always………

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ABSTRACT

An abstract of the project paper presented to the Faculty of Veterinary Medicine in partial fulfillment of the course VPD 4999-Project

OPERATION EFFICIENCY ANALYSIS OF THE
SMALL ANIMAL CLINIC, UNIVERSITY VETERINARY HOSPITAL

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2015

Supervisor: Associate Prof. Dr. Goh Yong Meng

Turnaround time (TAT) is an important determinant for workflow efficiencies in various healthcare facilities, including veterinary facilities. The objectives of this study were to determine the TAT of different service stations during consultation and treatment at the Small Animal Clinic (SAC), University Veterinary Hospital (UVH), and to identify possible factors that affect the TAT at each service station. A clinical workflow structure was established and each service station was defined. The service stations are reception, examination/biopsy/treatment, minilab, X-ray/ultrasound, interpretation and diagnosis, verification/dispensary, payment, and dispensary. TAT data was recorded for each service station during consultation using both computerized and manual recording methods. Details of the cases and other relevant information were recorded. The dataset was then analyzed using SPSS version 20. The mean TATs for each service station ranged from 1.96 mins (dispensary) to 42.10 mins (reception). Factors that determined TATs included the attributes of cases and human resource factors. The average revenue

per cases for the duration of the study was RM 166.10 per case, with the highest recorded on Mondays (RM 194.23) and lowest on Saturdays (RM 77.99). In conclusion, this study showed that the TAT is closely related to the nature of cases and inputs in human resource. Therefore the current findings could be use as a reference to further improve the service efficiencies of the SAC, UVH.

Keywords: turnaround time, nature of cases, human resources, revenue, small animal clinic
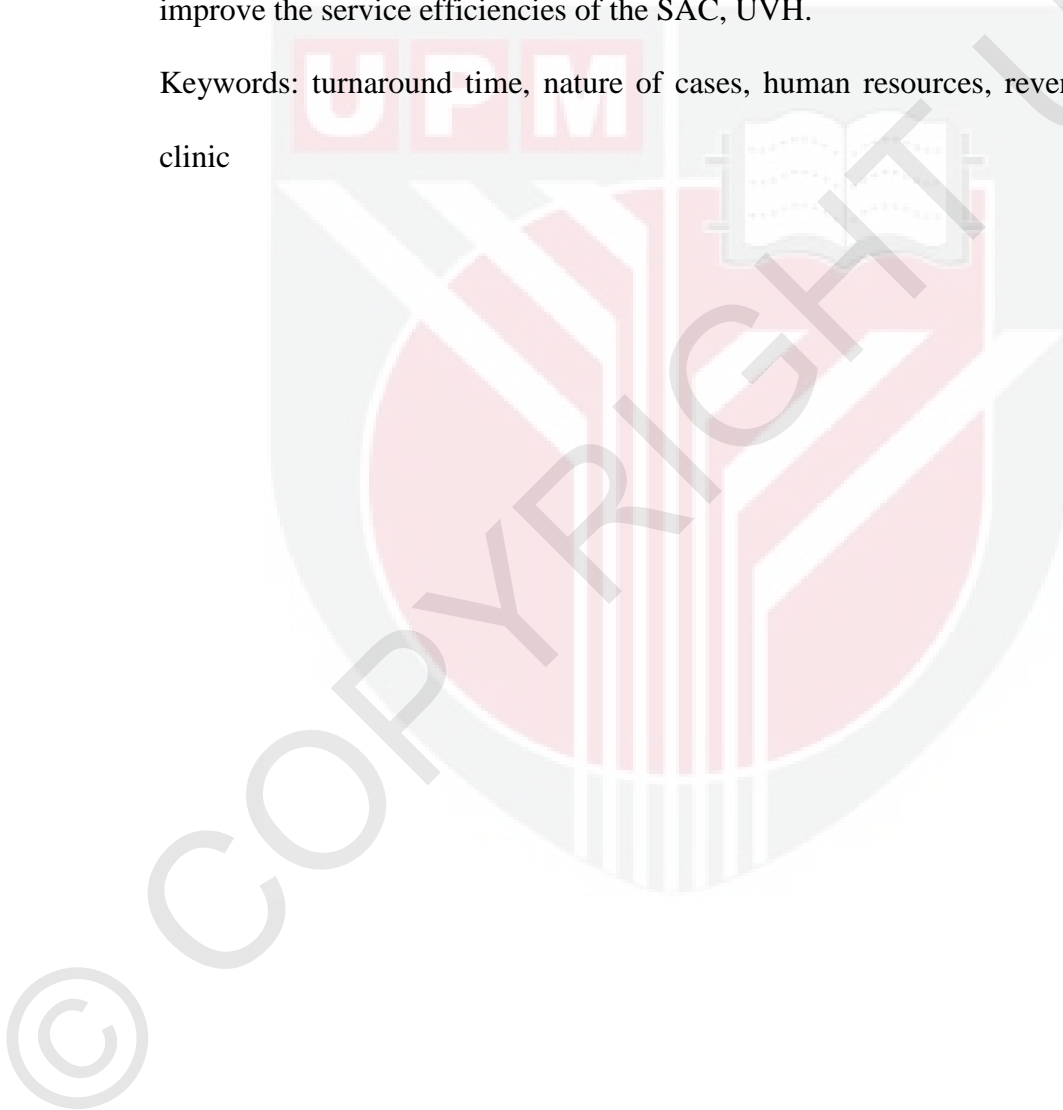
ABSTRAK

Abstrak daripada kertas projek yang dikemukakan kepada Fakulti Perubatan Veterinar untuk memenuhi sabahagian daripada keperluan kursus VPD 4901 - Projek

ANALISIS KECEKAPAN OPERASI DI
KLINIK HAIWAN KESAYANGAN, HOSPITAL VETERINAR UNIVERSITI

By

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2015

Penyelia: Associate Prof. Dr. Goh Yong Meng

Masa pusingan merupakan satu penentu yang amat penting untuk kecekapan aliran kerja dalam kemudahan kesihatan, termasuk kemudahan veterinar. Objektif kajian ini adalah untuk menentukan masa pusingan daripada stesen-stesen perkhidmatan semasa sesi konsultasi dan rawatan di Klink Haiwan Kesayangan (KHK), Hospital Veterinar Universiti (UVH) dan mengenal pasti factor-faktor yang mungkin akan mempengaruhi masa pusingan di setiap stesen perkhidmatan. Satu struktur aliran kerja klinical telah ditubuhkan dan setiap stesen perkhidmatan telah ditentukan. Stesen perkhidmatan adalah kounter penerimaan, pemeriksaan, minilab, X-ray/ultrasound, interpretasi dan diagnosis, pengesahan/dispensary, pembayaran, dan dispensari. Data masa pusingan telah direkod untuk setiap stesen perkhidmatan semasa konsultasi menggunakan kedua-dua cara, iaitu cara berkomputer dan cara rekod manual. Semua factor-faktor juga direkodkan. Kemudian, data analisis telah dijalankan mengguna SPSS versi 20. Purata

masa pusingan untuk setiap stesen perkhidmatan mempunyai julat daripada 1.96 minit (dispensari) ke 42.10 minit (kounter penerimaan). Faktor-faktor yang mempunyai pengaruh pada masa pusingan telah dibahagikan kepada dua kategori, iaitu faktor berkaitan dengan ciri-ciri kes dan faktor berkaitan dengan sumber manusia .Purata pendapatan per kes semasa kajian dijalankan adalah RM 166.10 per kes, dengan rekod tertinggi pada hari Isnin (RM 199.23), dan rekod terendah pada hari Sabtu (RM 77.99). Kesimpulannya, kajian ini menunjukkan masa pusingan ada perkaitan yang rapat dengan cirri-ciri kes dan sumber manusia. Oleh itu, keputusan semasa boleh digunakan sebagai rujukan untuk meningkatkan kecekapan perkhidmatan di KHK, UVH.

Kata kunci: masa pusingan, ciri-ciri kes, sumber manusia, pendapatan, klinik haiwan kesayangan

1.0   INTRODUCTION

University Veterinary Hospital (UVH) was established in 1975 by the Faculty of Veterinary Medicine and Animal Science, University Pertanian Malaysia (now known as University Putra Malaysia). The Small Animal Clinic (SAC) is one of the units in UVH. It provides various services for outpatient cases, and also directs patients that need further diagnostic investigation and treatment to the wards in the hospital. The SAC comprises of two separate reception counters, one for canine and the others for feline and between 8-10 consultation rooms. The SAC also has a minilab for simple diagnostic procedures, and it is connected to the radiology unit for the purpose of diagnostic imaging. The number of cases for the small animal clinic and UVH as a whole has been growing. In fact, the SAC, UVH recorded a 4.6 % growth in the number of small animal cases to 11554 cases in 2014, compared to a total of 11028 cases in 2013. Canine cases recorded significant increase of about 13.3 % from 3112 cases in 2013 to 3590 in 2014. Correspondingly, feline cases only showed a marginal increase of about 0.6 % from 7916 cases to 7964 cases in 2014. In terms of income, the UVH as a whole generated RM 1.556 million in 2011, and this grew by 48 % to RM 2.309 million in 2014. These are further testament to the necessity and relevancy of the services provided by the SAC and the entire UVH to the general public.

Successful operation of SAC requires adequate human resources, medical equipments, drugs, and other relevant instruments. With increasing cost of operation in veterinary hospital, it must be operating at its optimum capacity in order to generate maximum profitability. After a few decades of operation, this study represents the faculty's pioneering effort to determine the efficiency of clinical

workflow in the SAC, UVH. In order for UVH to have a long term goal to achieve maximum profitability using its optimum capacity, detailed study of the operational efficiency of clinical workflow of the SAC is necessary.

Since the 1980s, the efficiency of laboratory or pathological services is commonly evaluated by turnaround time (TAT) to quantify the time for laboratory tests in an objective manner (Bloch, 1982). A study done by Pati & Singh (2014) states that one of the indicators for the evaluation of quality and efficiency of the laboratory investigations is timeliness, which is commonly measured by using TAT. Many publications had been focusing on using TAT as an indicator for the evaluation of quality and efficiency in different health care industries, such as in emergency department (ED) human hospital (Rapoport *et al*., 2003), patient cycle time in a tertiary diabetes center (Tse, 2014), and also in the workflow of radiology unit (Halsted & Froehle, 2008). All these studies demonstrate that the application of TAT is not limited for pathology and laboratory services only.

Thus, in veterinary hospital setting, TAT can be measured in order to analyze the efficiency of workflow, and also to identify weak points in the hospital system for the improvement the entire system.

The overall objectives of this study were: -

1. To determine the TAT of different service stations during consultation and treatment at the SAC, UVH.

2. To identify possible factors that can affect the TAT at each service station.

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