

# **An Analysis of Variations in Healthcares Between Regions**

## **-Treatment Choice for Liver Cancer Patients**

by

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**Master of Science**



**Institute of Chinese Medical Sciences**

**University of Macau**

# 碩士學位論文

## 医疗服务地区差异性分析

### -以肝癌治疗为例

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# 醫療服務地區差異性分析

## -以肝癌治療為例

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-Treatment Choice for Liver Cancer Patients





## 摘要

醫療資源是一種有限的資源，而人們對於醫療資源的需求是無限的。提高醫療資源的使用效率，降低醫療資源的浪費和不必要使用是克服這種矛盾有效的途徑。小地域差異作為醫療資源配置中的現象，使得醫療資源在某些地域使用較多，而在另些地域使用不足。從而影響著醫療資源的使用效率。

本文以 200 例病人的臨床資料為研究樣本，通過資料分析，驗證醫療服務的地域間差異性。具體而言本文以肝癌為例，根據病人的臨床資料以巴塞隆納臨床肝癌分級系統（The Barcelona Clinic Liver Cancer, BCLC）將病患進行分級。比對巴塞隆納臨床肝癌分級系統推薦的治療方式，確定臨床實際治療和臨床指引間的差異。通過多元 logistic 回歸，確定影響醫生做出不依照 BCLC 分期系統臨床指引的因素，及其影響大小和作用。

本研究樣本顯示，該醫院醫生在治療肝癌患者時的治療方式和 BCLC 分級臨床指引的治療方式存在顯著差異，差異率為 60% 左右。眾多因數影響醫生對於治療方案的選擇。其中腫瘤大小、腫瘤數量、肝腹水、以及分期都會影響醫生對與治療方案的選擇。腫瘤大於 5cm、腫瘤為多發性、有肝腹水的病例，醫生更傾向于不依照臨床指引。而 BCLC 分期的早期和中期病人較傾向于依照 BCLC 分期臨床指引進行治療。提示醫生在肝癌患者病情不嚴重的情況下會依照 BCLC 分期臨床指引，而在病情嚴重的情況下根據醫生個人經驗和當地/醫院做法。

## Abstract

Medical resources are limited, particularly as opposed to increasing demand for good quality healthcare. Efficient use of health resources has thus become an important issue for most policy makers. Typical problems are unnecessary waste of health resources without proportionate benefits. Small area variation refers to differences in resource use, in terms of diagnosis, clinical advices and recommended treatments, across geographical areas – some patients may receive more health resources as compared to others in another area, being another efficiency issue.

This thesis capitalizes on a set of medical records on liver-cancer patients, which include clinical indicators, symptoms and treatments in great detail, to investigate possible variations in physician's treatment suggestions. All sampled patients were first categorized into different stages using the Barcelona Clinic Liver Cancer staging system. Treatments reported in the records were then compared with those suggested in the BCLC staging system in order to examine if there is any difference. A logistic model was used to identify what factors contribute to practice differences.

Analytic results suggested that there is statistically significant difference in treatments between guideline and physician's choice – more than 60 percent of treatments liver-cancer patients received did not follow the clinical guideline. Of all clinical indicators, tumour size, number of tumours, ascites and BCLC stage were found to be influential in leading physicians to choose against guideline: the larger the tumour size, the more the number of tumour and the more serious patient's condition is, the more likely physicians tend to perform against the guideline.