Health Care Utilization and Mortality of Variation

Manjeet Kumar*

Department of Health Services Research, University of Toronto Mississauga, Canada

Corresponding author: Manjeet Kumar

✉ ManjeetKumar10@gmail.com

Department of Health Services Research, University of Toronto Mississauga, Canada

Abstract

As disparities are frequently not reflected in health outcomes, geographic diversity in health care usage has generated concerns about potential inefficiencies in the health care system. We study regional variance in health care usage using extensive Norwegian microdata and cross-region migration. According to our findings, patient demand makes up the remaining 50% of the utilisation differential between high and low usage locations. The other 50% is accounted for by geographical characteristics. We also provide diverse effects of geography across socioeconomic classes. For high school dropouts and high school graduates, location variables account for 75% and 40%, respectively, of the regional utilisation differences; for patients with a college degree, the influence of place is minimal.

Keywords: Health care supply; Health care demand; Health care spending; Regional variation; Health outcomes

Introduction

The calculated location effects and overall mortality do not show any statistically significant correlation. However, we find that location effects are negatively correlated and utilization-intensive diseases like cancer, indicating that high-supply regions would experience only modest improvements in health outcomes. The Research Council of Norway has provided funding for this study [1]. For this study, the information provided by Statistics Norway and the Norwegian Patient Registry has been crucial [2]. At various phases of this project, the editor, two anonymous referees, Anna Aizer, Amy Finkelstein, Simen Gaure, Sverre A.C [3]. Kittelsen, Samuel Kleiner, and Edwin Leuven all provided valuable discussions, recommendations, and comments [4]. We gladly welcome the contributions made by attendees of conferences and seminars, including the student micro lunch held in 2016 at the University of Chicago and the ESOP lunch seminar held in 2016 at the University of Oslo [5]. Concerns about potential inefficiencies in the health care supply have been highlighted due to geographic variance in health care usage [6].

Discussion

Given that high consumption locations frequently do not have superior health outcomes, we may be particularly worried that some regions are overspending on healthcare. In this study, we use comprehensive microdata from Norway to address two issues [7]. First, how much of the heterogeneity in patient health at the basic level versus place-specific determinants drives regional variation in health care usage Second, are better health outcomes linked to a greater regional supply of healthcare? We contend that in order for policymakers to comprehend regional variance in health care usage, both issues are crucial. Regional variations in health care are, in theory Variations in supply variables like physician practise methods and demand factors like patient health might influence use [8]. Demand-driven variation is typically viewed as less troublesome since less problematic places may have average utilisation rates that are greater or lower depending on whether the local population requires more or less care [9]. On the other hand, supply-driven volatility often indicates inefficiency. On the one hand, if increased regional supply does not result in better health outcomes, heterogeneity in hospital area effects may point to inefficiently high usage [10]. In this situation, efficiency benefits may result from lowering the use of healthcare in areas with abundant supply [11]. We could be more worried about use being too low in low supply regions if, however, high supply regions actually have superior health outcomes [12]. Regions and the recommended policy response can entail increasing use rates in particular regions. In other words, the response to the second issue, which concerns the influence of hospital region impacts on health outcomes, is likely

to influence policy recommendations [13]. Prior U.S. study has found significant geographical variance in the use of healthcare. According to Baicker Fisher and Finkelstein, a portion of this fluctuation may be attributed to patient demand variables, with supply issues accounting for the remainder. However, the bulk of studies to far have reached the conclusion that the supply side is predominantly responsible for regional heterogeneity in health care cost [14]. However, it is not yet apparent how these findings would apply to a nationalised single-payer healthcare system where customers pay no copayments or very little copayments and hospitals have identical payment plans and physician incentives. Additionally, the majority of the U.S [15]. literature now in circulation is centred on the Medicare population, which exclusively comprises individuals 65 and older. Concerns concerning sample selection are all but eliminated because the current study uses data from the whole Norwegian population and covers all of the nation's main hospitals across the time. The current publication is also connected to a significant body of research on the relationship between health care and education. The socioeconomic gradient in health outcomes is well-established. Higher levels of education are linked to higher self-reported health, decreased mortality rates and a lesser chance of developing several diseases. There may also be a socioeconomic difference in how people use healthcare, according to the evidence. High income groups are more likely to obtain specialist health services than lower income groups, who are, if anything, more likely to use general practitioner care, according to studies from Europe and the United States. Norway exhibits trends that are comparable: High income and educated individuals are more likely to visit a hospital for outpatient care or to consult a medical expert, according to Vikum, but there is no correlation between these factors and visits to a general practitioner. Additionally, there is evidence that patients with higher levels of education use centralised, specialised care more frequently than do patients with lower levels of education. These results are in line with more educated patient's exhibit a pattern in which the local availability of hospital services is less constrained, which leads us to anticipate a lesser influence of geography for this group compared to less educated patients. Patient heterogeneity makes it difficult to identify and estimate hospital location impacts, and patient demand for healthcare is generally invisible. Age, gender, and education are only a few examples of the individual demographic factors that are unreliable indicators of underlying health state. We closely mimic Finkelstein's method of identifying hospital area impacts by taking advantage of patient mobility between hospital referral regions. To be more precise, we estimate panel models of log health care usage with geography and patient fixed effects, completely accounting for individual variation that is time invariant. There have been similar models with two-way fixed effects used to separate the effects of employers and employees on pay disparity in earlier studies The approach enables for movers' and stayers' use to be systematically distinct from one another and to be tied to their decisions about origin or destination. The fundamental defining presumption is that, depending on the individual and the environment, health-related movement patterns are as unpredictable as possible. Thus, our model reflects a difference in differences design that calls for trends in latent health demand to not change consistently with the movers' origin or destination.

Conclusion

We use an event study technique to estimate patterns of health care use around the time of migration in order to experimentally evaluate this assumption. Patients moving between areas are tracked for patterns of individual consumption using the two-way fixed effects the relative influences of each region on healthcare usage may be accurately identified by the model. The projected area fixed effects, however, are insufficient on their own to provide policy recommendations. First, despite the fact that we refer to supply and demand components interchangeably throughout the work, we realise that it is difficult to discern between the two given the research approach used. We can detect an overall location impact using the two-way fixed effects model under the underlying assumptions of our model. The components of this aggregate include hospital practise patterns, physician practise patterns, peer effects, and regional geographic variables. Second, we cannot determine if locations with large fixed effects have an impact on health outcomes unless these fixed effects are linked to those outcomes. Whether there is an excessively large supply of healthcare services or just insufficient services are offered in low-utilization areas. The two-way fixed effects approach, while useful for studying utilisation, may not be as useful for studying these ensuing health consequences. One issue is that many potentially visible health outcomes, such as death, are by nature singular occasions. In the two-way fixed effects model, it is not possible to explicitly predict these outcomes. Furthermore, even if patterns of healthcare use might change fast, actual health outcomes may be seen to be the consequence of a lengthier process, with quality and quantity of care having a substantial impact on results over time. The within-person variation is used to identify short-term effects in the two-way fixed effects model. Preventing the investigation of such postponed effects. By estimating panel models of cause-specific death rates as functions of the estimated hospital region effects, we solve these flaws in the second section of the research. This research refers to a controversial body of studies on the connection between expenditure and health, mostly from the United States. Our mortality study offers these field two unique contributions. First, rather of looking at average utilisation, we relate mortality to the anticipated patient and hospital region impacts. Second, in order to clarify the relationship between expenditure and mortality, we combine cause-of-death data with individual utilisation data. Because regions with sicker populations will likely to have higher death rates, interpreting the relationship between regional utilisation and mortality rate can be challenging.

Acknowledgement

Conflict of Interest

None

References

1   D'Angelo S, Tramontano G, Gilio M (2017) Review of the treatment of psoriatic arthritis with biological agents: choice of drug for initial therapy and switch therapy for non-responders. Open Access Rheumatol 9: 21–28.

2   Amaral T, Meraz Torres F, Garbe C (2017) Immunotherapy in managing metastatic melanoma: which treatment when? Expert Opin Biol Ther 17: 1523-1538.

3   Dummer R, Hauschild A, Lindenblatt N (2015). Cutaneous melanoma: ESMO clinical practice guidelines for diagnosis, treatment and follow-up. Ann Oncol 26: v126-v132.

4   Garbe C, Peris K, Hauschild A (2016) Diagnosis and treatment of melanoma. European consensus-based interdisciplinary guideline—update 2016. Eur J Cancer 63: 201-217.

5   Liu BL, Robinson M, Han ZQ (2003) ICP34.5 deleted herpes simplex virus with enhanced oncolytic, immune stimulating, and anti-tumour properties. Gene Ther 10: 292-303.

6   Moesta AK, Cooke K, Piasecki J (2017) Local delivery of OncoVEX(mGM-CSF) generates systemic antitumor immune responses enhanced by cytotoxic T-lymphocyte-associated protein blockade. Clin Cancer Res 23: 6190-6202.

7   Andtbacka RH, Kaufman HL, Collichio F (2015) Talimogene laherparepvec improves durable response rate in patients with advanced melanoma. J Clin Oncol 33: 2780-2788.

8   Harrington KJ, Andtbacka RH, Collichio F (2016) Efficacy and safety of talimogene laherparepvec versus granulocyte-macrophage colony-stimulating factor in patients with stage IIIB/C and IVM1a melanoma: subanalysis of the phase III OPTiM trial. Onco Targets Ther 9: 7081-7093.

9   Oyinlola JO, Campbell J, Kousoulis AA (2016) Is real world evidence influencing practice? A systematic review of CPRD research in NICE guidances. BMC Health Serv Res 16: 299.

10 Kennedy Martin T, Curtis S, Faries D (2015) A literature review on the representativeness of randomized controlled trial samples and implications for the external validity of trial results. Trials 16: 495.

11 Cramer JA, Roy A, Burrell A (2008) Medication compliance and persistence: terminology and definitions. Value Health 11: 44-47.

12 Xing Y, Bronstein Y, Ross MI (2011) Contemporary diagnostic imaging modalities for the staging and surveillance of melanoma patients: a meta-analysis. J Natl Cancer Inst 103: 129-142.

13 Mohr P, Eggermont AM, Hauschild A (2009) Staging of cutaneous melanoma. Ann Oncol 20 : vi14-vi21.

14 Miura JT, Zager JS (2018) Intralesional therapy as a treatment for locoregionally metastatic melanoma. Expert Rev Anticancer Ther 18: 399-408.

15 Marabelle A, Tselikas L, de Baere T (2017) Intratumoral immunotherapy: using the tumor as the remedy. Ann Oncol 28:xii33-xii43.