Horizontal inequity in healthcare access under the universal coverage in Japan; 1986–2007

Ryo Watanabe, Hideki Hashimoto[*]

Department of Health Economics and Epidemiology Research, The University of Tokyo School of Public Health, 7-3-1 Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

A R T I C L E   I N F O

A B S T R A C T

Universal coverage of healthcare aims at securing access to appropriate healthcare for all at an affordable cost. Since 1961, Japan's national health insurance has provided an equal package of benefits including outpatient, inpatient, dental, and pharmaceutical services. Reduced copayment and other welfare programs are available to the elderly. However, social health insurance may not be a panacea to achieve healthcare for all, especially when facing household impoverishment due to economic stagnation. Using time-series cross-sectional data of a nationally representative survey of Japan, we assessed the degree of inequity in healthcare access in terms of the "equal treatment for equal needs" concept, to identify the impact of changing economic conditions on people's healthcare access. Concentration indices of actual healthcare use (C_M) and standardized health status as a marker of healthcare needs (C_N) were obtained. We decomposed C_M to identify factors contributing to inequalities in healthcare use. Results showed that horizontal inequities in healthcare access in favor of the rich gradually increased over the period with a widening health gap among the poor. The inequality in favor of the rich was specifically observed among people aged 20–64 years, whereas high horizontal equity was achieved among those aged >65 years. Decomposition of C_M also demonstrated that income and health status were major contributors to widening inequality, which implies that changes in household economic conditions and copayment policy during the study period were responsible for the diminished horizontal equity. Our results suggest that the achievement of horizontal equity through universal coverage should be regarded as an ongoing project that requires continuous redesign of contribution and benefit in the nation's healthcare system.

© 2012 Elsevier Ltd. All rights reserved.

Introduction

Universal coverage of healthcare has become a global policy agenda, aiming to secure access to appropriate healthcare for all at an affordable cost (Carrin, Mathauer, Xu, & Evans, 2008). To achieve this egalitarian goal many countries including Japan have adopted social health insurance systems. Japan introduced social health insurance for factory workers in 1922, and gradually expanded the coverage until it achieved mandatory and universal coverage in 1961. Since then, Japanese health insurance has provided an equal package of benefits for all, including outpatient, inpatient, dental, and pharmaceutical services. Relatively generous coverage resulted in a rapid increase of medical care utilization, which at least partially contributed to the decrease in stroke and the consequent world's longest life expectancy of Japanese adults (Ikeda, Saito, Kondo, et al., 2011).

However, social health insurance may not be a panacea to achieve healthcare for all at an affordable cost. Previous studies across European and East-Asian countries revealed that the horizontal inequity (HI) in healthcare access over household economic conditions, or the degree of "equal access for equal needs" (Le Grand, 1978; Wagstaff, Paci, & van Doorslaer, 1991) varied across countries even with social insurance systems under universal coverage schemes (van Doorslaer, Koolman, & Puffer, 2002; Lu et al., 2007). In Japan, Ohkusa and Honda (2003) were the first to estimate the degree of HI using nationwide micro data from 1992, 1995 and 1998 (Ohkusa & Honda, 2003). They found that access was slightly unequal in favor of the poor in Japan. However, their analysis failed to incorporate the existing policy of reduced copayment for those aged ≥70 years, and was thus likely to over-estimate the pro-poor nature of the system because the elderly tend to consume a large portion of medical expense and their income is limited after retirement (Ministry of Health, Labour and Welfare, 2009a).

With the prolonged recession after the "bubble" economy implosion in 1991, the premium collection for Japanese public

* Corresponding author. Tel.: +81 3 5841 1887; fax: +81 3 5841 1888.
E-mail addresses: hidehashimoto-circ@umin.ac.jp, hashimoto_hideki@hotmail.com (H. Hashimoto).

health insurance has decreased because of decreased wages, while the demand for healthcare has been increasing with population aging (Ikegami & Campbell, 1999). The Japanese government responded to the situation by gradually raising copayment rates for the elderly and the employed since the late 1990s as shown in Table 1. Economic recession also led to increasing income disparity and relative poverty, which could result in a widening gap in access to necessary healthcare across income groups (Organization for Economic Cooperation and Development, 2006; Tachibanaki & Urakawa, 2008). Indeed, Babazono, Kuwabara, Hagihara, Yamamoto, and Hillman (2005) reported a significant reduction in outpatient care utilization among diabetic patients who were covered by health insurance for the employed after a copayment amendment in 2003. However, until now, there has been no nationwide assessment of the impact of economic recession and policy change on the HI in healthcare access in Japan. With emerging global interest in constructing universal coverage schemes (World Health Organization, 2010), Japan's experience provides an important lesson on how HI in access to effective healthcare would be threatened in the face of economic difficulties and population aging. This paper aimed to fill the gap in the evidence discussed above by analyzing nationwide data throughout the 1980s and 2000s, when Japan struggled through demographic and economic challenges.

Methods

For our purpose, we basically followed previous studies (van Doorslaer et al., 1997; van Doorslaer et al., 2002; Lu et al., 2007; Ohkusa & Honda, 2003) to assess income-related HI by calculating concentration indices (CIs) of healthcare utilization using time-series cross-sectional data of nationally representative samples, the details of which are below.

Data sources: comprehensive survey of living conditions (CSLCP)

We followed Ohkusa and Honda (2003) and used CSLCP micro data. A large-scale CSLCP was conducted every 3 years, in which all households and their members living in sample unit areas, which were cluster-sampled from 47 prefectures nationwide in Japan, were invited to participate. The survey comprised self-administered questionnaires on household and members' health statuses, and an interview questionnaire on household income. The income survey was conducted in a subsample of household and health surveys. Household and health questionnaires were administered in June of each survey year, and the interview survey on income status was conducted in July of the same year.

In the 2007 survey, the household and health questionnaires were distributed to a total of 287,807 households located in 5440 unit areas that were selected by stratified random sampling from areas of the Population Census conducted in 2005. A total of 230,596 households completed the questionnaires (response rate, 80.1%). The income survey, on the other hand, was conducted in 36,285 households in 2000 sample unit areas; 24,578 households responded (response rate, 67.7%). We merged a dataset for these three questionnaires by unique IDs for households and individuals, which included data from 45,586 individuals (M/F, 21,656/23,930) in 16,177 households. Using similar procedures we obtained 7 data-bases for the years 1986, 1989, 1992, 1995, 1998, 2001, and 2004.

Household income

The survey assessed annual pretax income including labor income, asset income, pension, and other social security transfers. Following a previous study (Shibuya, Hashimoto, & Yano, 2002), we obtained equivalent pre-tax income by dividing total household pre-tax income by the square root of the number of family members.

Healthcare utilization

To measure healthcare utilization we used self-reported "physician visits in the previous 1 month" in the questionnaires. Physician visits included outpatient and inpatient services provided by western medicine physicians as well as traditional care such as acupuncture for musculoskeletal conditions covered by public health insurance.

Estimation of healthcare needs

Healthcare needs are often operationalized as expected likelihood (e.g. probability or amount) of healthcare use (van Doorslaer et al., 1997). More concretely, actual healthcare use was regressed on the "needs" and "non-needs" factors of individuals, and a predicted value using the actual values of the "needs" variables was obtained as the estimate of "healthcare needs" solely attributable to the individual's needs status. "Needs" variables often include the individual's demographic and health conditions, while "non-needs" variables are composed of household income, regional availability of services, and other socio-economic conditions that may affect access to healthcare. However, in this study, we chose not to use this method because we believe that predicted health utilization would underestimate healthcare needs, especially among the poor. Linearly predicted healthcare utilization should reflect healthcare need if the threshold of health conditions that leads to care utilization is independent of income status and year.

Table 1
Transition of copayment rate in Japan.

Type of insurance	Year							
	1983	1997	2001	2002	2003	2006		2008
Health services for elderly	IP: 300 yen/day OP: 400 yen/day	IP: 1000 yen/day OP: 500 yen/day + medication sharing	10%	10% (20%)		10% (30%)	Age 75 and over Age 70–74	10% (30%) 20% (30%)
National health insurance[a]		30%		IP: 30% OP: 30% + medication sharing		30%	Under 70	30%
Employee's health insurance	Beneficiary	Fixed payment (-1984) 10%(1984-)		IP: 20% OP: 20%; medication sharing		30%		
	Beneficiary's dependent family	IP: 30% (-1981) IP: 20%(1981-) OP: 30%		IP: 20% OP: 30%; medication sharing		30%		

IP: inpatient, OP: outpatient.
Source: Ministry of Health, Labour and Welfare. Annual Health, Labour and Welfare Report: 2007 (in Japanse).
  [a] Self-employed, retired, and their family.