Published in final edited form as:

J Immigr Minor Health. 2018 February ; 20(1): 20–25. doi:10.1007/s10903-016-0517-9.

Hospitalization Rates for Acute Myocardial Infarction among Asian-American Subgroups: Have We Been Underestimating the Problem?

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Abstract

Background—Concerns about the quality of race/ethnicity data collected by hospitals have limited our understanding of healthcare disparities affecting ethnic minorities in the United States.

Methods—Using data from the New Jersey State Inpatient Databases and the American Community Survey, we calculated age-adjusted AMI hospitalization rates for Asian-American subgroups before (2005–2006) and after (2008–2009) New Jersey hospitals implemented standardized practices to collect more accurate granular race/ethnicity data from patients. Rates were reported per 100,000 persons for Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese subgroups.

Results—AMI hospitalization rates increased for all subgroups except Vietnamese following implementation of the New Jersey program; increases were statistically significant for Asian Indian, Chinese, and Korean subgroups.

Discussion—Rates of hospitalization for AMI increased significantly for multiple Asian-American subgroups following implementation of the New Jersey program. National population health metrics for Asian-American subgroups may be prone to significant underestimation without widespread utilization of similar practices.

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Conflict of Interest: Dr. Chakkalakal declares that she has no conflict of interest. Dr. Fox declares that he has no conflict of interest. Dr. Green declares that he has no conflict of interest. Dr. Nunez-Smith declares that she has no conflict of interest. Dr. Nallamothu declares that he has no conflict of interest. Dr. Hasnain-Wynia declares that she has no conflict of interest.

Compliance with Ethical Standards

Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

Keywords

Data Collection; Minority Health; Ethnic Groups; Asian Americans; Myocardial Infarction

Background

The Institute of Medicine (IOM), Joint Commission, National Committee for Quality Assurance, and National Quality Forum have recently called upon hospitals to improve the reliability and validity of the data they collect about patients' race/ethnicity so they can better understand the needs of the populations they serve, measure disparities in care within their institution, and initiate programs to improve the quality of care they deliver (1–5). Nearly 90% of the nation's hospitals collect data on race/ethnicity but concerns over the accuracy and reliability of this information continue to limit the use of hospital administrative data to identify and track racial/ethnic disparities in care (1, 6–10). Most hospitals currently collect and report data on race/ethnicity according to directives set by the Office of Management and Budget (OMB) which includes 5 race categories—American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Other Pacific Islander, and White—and an option for ethnic identification of individuals who are Hispanic/Latino (11). These broad OMB categories fail to capture the detail needed to study the numerous ethnic subgroups living in the US who face unique health problems and likely have dissimilar patterns of care and outcomes (2, 12).

Race/ethnicity data limitations have made the health status and health care needs of Asian-American subgroups particularly difficult to understand (13–15). According to the US Census Bureau, the term “Asian” refers to people having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including Asian Indians, Chinese, Filipinos, Japanese, Koreans, and Vietnamese (16). About 11.9 million people living in the US population are Asian American, and Asian Americans are among the fastest growing of all major racial or ethnic groups in the US (16). Asian Americans are prone to misclassification and undercounting in hospital records because of systemic problems with current race/ethnicity data collection strategies (8, 9, 17) including reliance on observer-reported rather than self-reported race/ethnicity data (18) and the common practice of homogenizing diverse Asian-American subgroups into a single broad “Asian” race category.

Standardizing a process to collect granular ethnicity data (defined as a “person's ethnic origin or descent, ‘roots,’ or heritage, or the place of birth of the person or the person's parents or ancestors”) that could also be “rolled up” into the OMB categories would address several barriers to the accurate collection of data on Asian-American subgroups (1). In 2007 New Jersey hospitals implemented multiple strategies to standardize the process of collecting self-identified granular ethnicity data to improve the accuracy and reliability of the information they collect about the ethnic communities they serve (19) including Asian Americans who account for 7.1% of the state's population (20). We previously found that the proportion of patients classified in the broad Asian/Pacific Islander category increased significantly following implementation of these standardized data collection practices (21). However, if and how these changes had an effect on health metrics at the level of individual

Asian-American subgroups is unknown. Here we examine the effect of the New Jersey program on measures of health status among Asian-American subgroups by comparing their rates of hospitalization for acute myocardial infarction (AMI) before and after implementation of the program in 2007. We chose to study AMI because previous studies have observed significant variation in the prevalence of cardiovascular disease among Asian-American subgroups but little is known about variation in AMI hospitalization rates among these subgroups (22).

Methods

“Patient Race and Ethnicity: Improving Hospital Data Collection and Reporting”

The population of New Jersey has rapidly become one of the most racially and ethnically diverse in the nation with an estimated 20% of New Jersey residents being foreign-born (up from 15% in 2000 and 13% in 1990) (23). Since 1996, the Health Research and Education Trust (HRET) of New Jersey has implemented multiple strategies to improve hospitals’ ability to capture accurate and reliable race/ethnicity data so that providers, administrators, researchers and policymakers can better understand differences in the health needs of the state’s diverse subpopulations and to identify variation in the quality of care delivered to these groups. For example, to account for the various ethnic subgroups living in the state, New Jersey was one of the first states to collect and report granular ethnicity data in hospital discharge records. Despite these efforts, a study conducted by HRET in 2003 noted persistent misclassification and undercounting of some groups within New Jersey discharge data, particularly Asian Americans (19). A subsequent survey identified a lack of standardized processes for the collection, coding, and reporting of self-identified patient race/ethnicity data, as well as a lack of training for hospital staff on the reasons and processes for this data collection, as key barriers to the collection of high-quality race/ethnicity data within New Jersey hospitals. “Patient Race and Ethnicity: Improving Hospital Data Collection and Reporting” was an HRET campaign funded through a grant from the Robert Wood Johnson Foundation that aimed to overcome these barriers. As part of this campaign, the New Jersey Department of Health and Senior Services (NJDHSS) mandated that all New Jersey hospitals adopt a standard set of reorganized race/ethnicity categories that were consistent with U.S. Census Bureau granular ethnicity categories in January 2007 (Table 1). During 2007, HRET also worked with hospitals across the state to implement their standardized guidelines and uniform protocols by (1) conducting training programs for hospital intake workers, access managers, supervisors and registrars, (2) adapting information technology systems to be compatible with the standardized guidelines, and (3) distributing educational tools, resources, and reference toolkits to hospital staff to ensure sustainability of the campaign.

Data sources

We determined the number of AMI hospitalizations for each Asian-American subgroup in a given year (numerator for rate calculations) using the New Jersey State Inpatient Databases (SID). The SID are part of the Healthcare Cost and Utilization Project (HCUP), a Federal-State-Industry partnership sponsored by the Agency for Healthcare Research and Quality (AHRQ) (24). The New Jersey SID consist of the universe of New Jersey’s inpatient

discharge records obtained from the New Jersey Discharge Data Collection System managed by the State of New Jersey Department of Health and Senior Services. In addition to core data elements that are uniformly formatted for all SID files, the New Jersey SID reports granular ethnicity for several subpopulations including the 6 largest Asian-American subgroups in the state which were included in this study: Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese. We estimated the total number of individuals from each Asian-American subgroup living in New Jersey in each year of interest (denominator for rate calculations) using the 1-year Public Use Microdata Sample (PUMS) files of the American Community Survey (ACS) conducted by the U.S. Census Bureau (25).

Study Sample

We restricted the sample to adults age 35 and older with a principal discharge diagnosis of AMI (ICD-9 CM diagnostic codes 410.x0 or 410.x1). Since the aim of the study was to compare hospitalization rates among individuals who belonged to a single Asian-American subgroup, we excluded multiracial or multiethnic individuals. We identified individuals from each of the 6 Asian-American subgroups using specific granular ethnicity codes for each subgroup. We used the same methods to identify individuals within the SID and the ACS to ensure comparability between numerators and denominators.

Data Analysis

Age-adjusted hospitalization rates for AMI were calculated for each study period (2005–2006 and 2008–2009) as AMI hospitalizations per 100,000 persons for each of the following 6 Asian-American subgroups: Asian Indians, Chinese, Filipinos, Japanese, Koreans, and Vietnamese. We excluded 2007 as it was the transitional year during which the New Jersey program was implemented. The rates were age-adjusted to the 2000 U.S. standard population (26) using 4 age groups (35–44, 45–54, 55–64, 65 and over). 95% confidence intervals were generated using a previously published method (27, 28). Age-adjusted hospitalization rates for each racial/ethnic group were compared before and after the data collection improvement effort; rates were considered significantly different from each other if the confidence intervals did not overlap. The study was deemed exempt from review by the Yale Institutional Review Board.

All analyses were performed using SAS version 9.2 (SAS Institute Inc, Cary, North Carolina), Microsoft Excel (Redmond, Washington, 2007) and Stata 12.0 (StataCorp, College Station, Texas, 2009).

Results

We detected significant increases in the age-adjusted hospitalization rates for AMI among Asian Indian, Chinese, and Korean subgroups after New Jersey standardized its data collection system in 2007 to more accurately identify ethnic minorities (Table 2). The observed increases in hospitalization rates were driven by the proportionally greater number of AMI hospitalizations (numerator) identified in 2008–2009 as compared to 2005–2006 since the population size (denominator) stayed relatively constant between study periods for all subgroups. Even for the Asian Indian subgroup which experienced the largest population

growth between the 2 study periods, the disproportionate increase in the number of AMI hospitalizations following improvements to the data collection strategy led to a significant increase in hospitalization rates for AMI.

The pattern of variation in AMI hospitalization rates also changed after implementation of the new data collection strategy (Table 2). In 2005–2006, the rates ranged from 58–159 hospitalizations per 100,000 people whereas in 2008–2009, the rates ranged from 98–291 hospitalizations per 100,000 people. Chinese had the lowest rates of hospitalization for AMI in both study periods whereas Vietnamese had the highest rates of AMI hospitalization in 2005–2006 and Japanese had the highest rates in 2008–2009. However, given the small sample sizes of Vietnamese and Japanese, these rates lack precision as seen in their wide confidence intervals. Among the 4 larger subgroups that had more precise hospitalization rate estimates, Filipinos had the highest rates of hospitalization in 2005–2006 whereas Asian Indians had the highest rates in 2008–2009.

Discussion

We observed significant increases in the reported rates of AMI hospitalization for Asian Indian, Chinese, and Korean subgroups following the implementation of a statewide strategy to improve the accuracy of granular race/ethnicity data collected in New Jersey hospitals using standardized data collection processes. More accurate identification of these subgroups in discharge records as a result of the standardized data collection strategy most likely led to these observed increases in AMI hospitalization rates. For example, the New Jersey program included several strategies designed to reduce the likelihood that race/ethnicity data would be reported based on observations made by admitting or registration staff (18) which has been found to be reasonably accurate for whites and blacks but much less accurate for other groups and leads to high rates of missing data or being classified as “unknown” or other” (8–10, 17, 29). Although our findings suggest that correction of misclassification and underreporting within the data collection system account for the increase in hospitalization rates, our study focuses only on Asian-American subgroups so it remains unclear if and how Asian Americans were misclassified in New Jersey hospital records prior to 2007. Gomez and colleagues found that among Asians whose race was misclassified in administrative data from Kaiser Permanente, the majority were misclassified as white, followed by Hispanic, black and American Indian (30).

We also observed important differences in how rates of AMI hospitalization varied among Asian-American subgroups following implementation of the new data collection strategy. Prior to the policy change, the Vietnamese subgroup had the highest rates of hospitalization for AMI followed by Filipinos, Asian Indians, Japanese, Koreans, and Chinese. After the policy change, the Japanese subgroup had the highest rates of hospitalization for AMI followed by Asian Indians, Filipinos, Koreans, Vietnamese and Chinese. Few studies have examined differences in AMI hospitalization rates among all 6 of the Asian-American subgroups included in our study so we cannot comment on the accuracy of the pattern of variation observed in either study period. Studies from northern California and British Columbia have reported differences in hospitalization rates among some, but not all, of these subgroups; in both studies, South Asians (Asian Indians and Pakistanis) were found to have

the highest rate of hospitalization for AMI which is consistent with what we observed in New Jersey following implementation of the standardized data collection strategy (31, 32).

Our study has some important limitations. As previously noted, the hospitalization rate estimates for Japanese and Vietnamese were rather imprecise because of small sample sizes for these subgroups. Additionally, we cannot prove that the observed increase in rates in the second study period is due solely to the change in the data collection system. However, given the short duration of time over which we studied these AMI hospitalization rates (2005 to 2009), it is unlikely that the increase in rates was due to an increase in the incidence of AMI among Asian- American subgroups. Moreover, recent studies have demonstrated overall decreases in the incidence of AMI in the US within the past decade (33). Unfortunately, Asian Americans have been excluded from these previous analyses of trends in rates of AMI hospitalization so we cannot directly compare our results to national statistics.

New Contribution to the Literature

The accurate identification of health disparities across racial/ethnic subgroups fundamentally depends on the quality of the race/ethnicity data used to generate population health metrics. Misclassification and/or underreporting of ethnic minorities in healthcare data can cause serious “selection effects” which impair our ability to accurately detect health disparities affecting these groups (34). In an effort to better identify, address and track healthcare disparities among racial/ethnic subgroups living in the US, Section 4302 of the Affordable Care Act calls for improvements to the current national standards for the collection of data on race/ethnicity within federally-funded health care institutions (35). Accordingly, the Department of Health and Human Services has proposed new data collection standards that closely resemble the standards introduced in New Jersey in 2007 (35). As they begin to implement these new standards hospital administrators across the country should take note of the results of this study which, to our knowledge, is the first to evaluate the impact of improved data collection strategies on measures of health status for Asian-American subgroups. The finding that New Jersey’s standardized data collection system had a significant impact on reported measures of health status among Asian-American subgroups by more accurately identifying individuals from these subgroups within hospital records suggests that population health metrics for Asian-American subgroups may be prone to significant underestimation if healthcare systems fail to utilize similar practices when collecting race/ethnicity data. Hospitals that serve communities with significant racial/ethnic diversity should make concerted efforts to standardize the process by which they collect race/ethnicity data from their patients so they can more accurately and reliably understand the health care needs of the communities they serve.

Acknowledgments

The authors would like to acknowledge Dr. Firoozeh Vali, PhD, Vice President, Research, New Jersey Hospital Association/HRET for helping them understand and describe the standardized data collection process implemented in New Jersey in 2007.

Funding: This study was funded in part by the Robert Wood Johnson Foundation Clinical Scholars Program at Yale University (award ID 70033).

References

1. Institute of Medicine. Race, Ethnicity, and Language Data: Standardization for Health Care Quality Improvement. Washington, DC: The National Academies Press; 2009.
2. Hasnain-Wynia R, Baker DW. Obtaining Data on Patient Race, Ethnicity, and Primary Language in Health Care Organizations: Current Challenges and Proposed Solutions. *Health Services Research*. 2006; 41(4p1):1501–1518. [PubMed: 16899021]
3. National Committee for Quality Assurance. Implementing Multicultural Health Care Standards: Ideas and Examples: NCQA. 2011
4. Weissman JS, Betancourt JR, Green AR, Meyer GS, Tan-McGrory A, Nudel JD, Zeidman JA, Carrillo JE. Healthcare Disparities Measurement: National Quality Forum. 2011
5. Wilson-Stronks A, Galvez E. Hospitals, Language, and Culture: A Snapshot of the Nation: The Joint Commission. 2007
6. Hasnain-Wynia R, Pierce D, Haque A, Hedges Greising C, Prince V, Reiter J. Health Research and Educational Trust Disparities Toolkit. 2007
7. Moscou S, Anderson MR, Kaplan JB, Valencia L. Validity of Racial/Ethnic Classifications in Medical Records Data: An Exploratory Study. *American Journal of Public Health*. 2003; 93(7): 1084–1086. [PubMed: 12835189]
8. Blustein J. The reliability of racial classifications in hospital discharge abstract data. *American Journal of Public Health*. 1994; 84(6):1018–1021. [PubMed: 8203669]
9. Kressin NR, Chang BH, Hendricks A, Kazis LE. Agreement Between Administrative Data and Patients' Self-Reports of Race/Ethnicity. *American Journal of Public Health*. 2003; 93(10):1734–1739. [PubMed: 14534230]
10. Boehmer U, Kressin NR, Berlowitz DR, Christiansen CL, Kazis LE, Jones JA. Self-Reported vs Administrative Race/Ethnicity Data and Study Results. *American Journal of Public Health*. 2002; 92(9):1471–1472. [PubMed: 12197976]
11. Office of Management and Budget. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. 1997
12. Andrusis, DPSN., Putrle, JP., Duchon, L. Patient Protection and Affordable Care Act of 2010: Advancing Health Equity for Racially and Ethnically Diverse Populations. Washington, DC: Joint Center for Political and Economic Studies; 2010.
13. Narayan KMV, Aviles-Santa L, Oza-Frank R, Pandey M, Curb JD, McNeely M, Araneta MRG, Palaniappan L, Rajpathak S, Barrett-Connor E. Report of a National Heart, Lung, and Blood Institute Workshop: Heterogeneity in Cardiometabolic Risk in Asian Americans in the U.S.: Opportunities for Research. *Journal of the American College of Cardiology*. 2010; 55(10):966–973. [PubMed: 20202512]
14. Islam NS, Khan S, Kwon S, Jang D, Ro M, Trinh-Shevrin C. Methodological issues in the collection, analysis, and reporting of granular data in Asian American populations: historical challenges and potential solutions. *J Health Care Poor Underserved*. 2010; 21(4):1354–1381. [PubMed: 21099084]
15. Ghosh C. Healthy People 2010 and Asian Americans/Pacific Islanders: Defining a Baseline of Information. *American Journal of Public Health*. 2003; 93(12):2093–2098. [PubMed: 14652340]
16. Barnes PM, Adams PF, Powell-Griner E. Health characteristics of the Asian adult population: United States, 2004–2006. *Adv Data*. 2008; (394):1–22.
17. Pan CX, Glynn RJ, Mogun H. Definition of race and ethnicity in older people in Medicare and Medicaid. *Journal of the American Geriatrics Society*. 1999; 47(6):730–733. [PubMed: 10366176]
18. Hasnain-Wynia, R., Pierce, D., Pittman, M. Who, When, and How: The Current State of Race, Ethnicity, and Primary Language Data Collection in Hospitals. New York: Commonwealth Fund; 2004 May 18. 2004
19. Vali, F. Patient Race & Ethnicity: Improving Hospital Data Collection & Reporting. Princeton, NJ: 2004.
20. Barnes J, Bennett CE. The Asian population: 2000. Census 2000 Brief.

21. Chakkalakal RJ, Green JC, Krumholz HM, Nallamothu BK. Standardized Data Collection Practices and the Racial/Ethnic Distribution of Hospitalized Patients. *Med Care*. 2015; 53(8):666–672. [PubMed: 26147864]
22. Barnes, PM., Adams, PF., Powell-Griner, E. Advance Data from Vital and Health Statistics. Hyattsville, MD: National Center for Health Statistics; 2008. Health Characteristics of the Asian Adult Population: United States, 2004–2006.
23. Kelly, L., Lamothe-Galette, C., Li, Y., O'Dowd, K. The Health of the Newest New Jerseyans: A Resource Guide. Trenton, NJ: Center for Health Statistics, Office of Policy & Strategic Planning, New Jersey Department of Health and Senior Services; 2011 Feb.
24. Agency for Healthcare Research and Quality. HCUP State Inpatient Databases (SID). Healthcare Cost and Utilization Project (HCUP). Rockville, MD: 2005–2009.
25. U.S. Census Bureau. A Compass for Understanding and Using American Community Survey Data: What PUMS Data Users Need to Know. Washington, D.C.: U.S. Government Printing Office; 2009.
26. US Standard Population, 1940–2000. National Cancer Institute; 2012.
27. Fay MP, Feuer EJ. Confidence intervals for directly standardized rates: a method based on the gamma distribution. *Stat Med*. 1997; 16(7):791–801. [PubMed: 9131766]
28. Tiwari RC, Clegg LX, Zou Z. Efficient interval estimation for age-adjusted cancer rates. *Stat Methods Med Res*. 2006; 15(6):547–569. [PubMed: 17260923]
29. Swallen KC, Glaser SL, Stewart SL, West DW, Jenkins CN, McPhee SJ. Accuracy of racial classification of Vietnamese patients in a population-based cancer registry. *Ethnicity & Disease*. 1998; 8(2):218–227. [PubMed: 9681287]
30. Gomez SL, Kelsey JL, Glaser SL, Lee MM, Sidney S. Inconsistencies between self-reported ethnicity and ethnicity recorded in a health maintenance organization. *Annals of Epidemiology*. 2005; 15(1):71–79. [PubMed: 15571996]
31. Klatsky A, Tekawa I, Armstrong MA, Sidney S. The Risk of Hospitalization for Ischemic Heart Disease among Asian Americans in Northern California. *American Journal of Public Health*. 1994; 84(10):1672–1675. [PubMed: 7943495]
32. Nijjar A, Wong H, Quan H, Khan N. Ethnic and sex differences in the incidence of hospitalized acute myocardial infarction: British Columbia, Canada 1995–2002. *BMC Cardiovascular Disorders*. 2010; 10(38)
33. Chen J, Normand S-LT, Wang Y, Drye EE, Schreiner GC, Krumholz HM. Recent Declines in Hospitalizations for Acute Myocardial Infarction for Medicare Fee-for-Service Beneficiaries. *Circulation*. 2010; 121(11):1322–1328. [PubMed: 20212281]
34. Kilbourne AM, Switzer G, Hyman K, Crowley-Matoka M, Fine MJ. Advancing health disparities research within the health care system: a conceptual framework. *Am J Public Health*. 2006; 96(12):2113–2121. [PubMed: 17077411]
35. Department of Health and Human Services. Federal Register. 2011. Notice of Availability of Proposed Data Collection Standards for Race, Ethnicity, Primary Language, Sex, and Disability Status Required by Section 4302 of the Affordable Care Act; p. 38396-38397.

Table 1

Race/Ethnicity Categories

New Jersey SID		HCUP 2005–2009
2005–2006	2008–2009	
Mexican	Mexican, Mexican American, Chicano	Hispanic
Puerto Rican	Puerto Rican	
Cuban	Cuban	
Central or South American	Central or South American	
Other and Unknown	Other	
Hispanic	Spanish/Hispanic/Latino	
White	White	White
Black	Black or African American	Black
Asian Indian	Asian Indian	Asian or Pacific Islander
Chinese	Chinese	
Filipino	Filipino	
Japanese	Japanese	
Korean	Korean	
Vietnamese	Vietnamese	
Native Hawaiian	Native Hawaiian	
Guamian or Chamorro	Guamian or Chamorro	
Samoan	Samoan	
Other Asian or Pacific Islander	Other Asian Other Pacific Islander	
American Indian or Alaska Native	American Indian or Alaskan Native	Native American
Multiracial: White and Black or African American	Multiracial: White and Black or African American	Other
Multiracial: White and American Indian or Alaskan Native	Multiracial: White and American Indian or Alaskan Native	
Multiracial: White and Asian	Multiracial: White and Asian	
Multiracial: Black or African American and American Indian or	Multiracial: Black or African American and American Indian or	

New Jersey SID		HCUP 2005–2009
2005–2006	2008–2009	
Alaskan Native	Alaskan Native	
Other races	Other Race	
Unknown, Missing	Declined to answer	Missing
Declined to Answer	Declined to answer	
Blank	Blank	

Granular race/ethnicity categories reported in the New Jersey SID before and after implementation of standardized data collection practices and how the granular categories “roll up” to broad categories in the HCUP

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Table 2
Age-Adjusted AMI Hospitalization Rate per 100,000 for Asian-American Subgroups

Race/Ethnicity *	Before: 2005–2006			After: 2008–2009		
	Number of AMI Hospitalizations	NJ Population	Age-Adjusted Rate (95% CI)	Number of AMI Hospitalizations	NJ Population	Age-Adjusted Rate (95% CI)
Asian Indian *	189	213,785	141 (120–164)	398	241,390	214 (192–237)
Chinese *	65	146,656	58 (45–75)	88	141,498	98 (78–121)
Filipino	150	121,406	145 (122–170)	212	125,647	174 (151–200)
Japanese	14	17,264	131 (69–222)	41	17,737	291 (207–395)
Korean *	40	89,128	73 (51–100)	100	90,342	164 (132–200)
Vietnamese	18	21,519	159 (88–257)	26	25,045	126 (81–185)

* Denotes statistically significant differences in hospitalization rates between the 2 study periods.