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A Comparative Analysis of Hospital Readmissions in France and the US

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ABSTRACT Policymakers in the US and France are struggling to improve coordination among hospitals and other health care providers. A comparison of hospital readmission rates, and the factors that may explain them, can provide important insights about the French and US health care systems. In addition, it illustrates a methodological approach to comparative research: how an empirical inquiry along a single indicator can reveal broader issues about system-wide differences across health care systems and policy. Using data from three French regions, the article extends a previous national-level comparison indicating that rates of hospital readmission for the population aged 65+ are lower in France than in the US. In addition, we extend the range of variables available in the national comparison by drawing on neighborhood-level income data available from a previous study of access to primary care among three French regions. Within France, the odds of surgical hospital readmission are significantly lower in private for-profit hospitals compared with public hospitals. Patients who live in lower income neighborhoods are also more likely to be readmitted for medical and surgical conditions than are patients living in higher income

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neighborhoods, but this income effect is weaker than in the US. The article concludes with a discussion of how these findings reflect broader system-wide differences between the US and French health systems and the ways in which policymakers attempt to coordinate hospitals and community-based services.

Keywords: comparative health systems analysis; hospital readmissions; French health system; Medicare

1. Introduction

In thinking about comparative political systems, France and the United States are often juxtaposed as “contrasting cases” as opposed to what Marmor et al. (2005) have called “most similar systems”. This proposition could be documented in many policy arenas, ranging from nuclear power, to education, children’s services and health care. France stands out as an example of a unitary and centralized state whereas the United States has a government marked by separate institutions sharing power at the federal level and a division of powers between the federal and state governments (Neustadt 1960). In the health care sector, significant differences abound. France is a model of statutory national health insurance (NHI) offering monopsonistic universal coverage in contrast to the US system with 11.9 per cent of the population still uninsured and a strong role, even after passage of President Obama’s Patient Protection and Accountable Care Act (ACA), for private insurers and employers in setting the terms of health care coverage. France has strong price controls throughout the health care sector; in the US, price controls are limited to public programs such as Medicare and Medicaid. In France, two-thirds of hospital beds are public and the private sector is dominated by for-profits; in the US, two-thirds of hospital beds are private and the non-profits dominate, in most markets.

There are still other differences between the US and French health systems, but in this paper we focus on an important area of policy convergence – the struggle to contain rising health care costs and to achieve coordination among hospitals and other health care providers. What is most striking today in French and American health policy circles is the extent to which policymakers are trying to reconfigure organizational structures so that hospitals work much more closely with physicians in community-based practice and the multitude of other health professionals who can assist in addressing some of the social determinants of health (Schroeder 2007). Policy discourse in both France and the United States promotes the medical home model of primary care. There is renewed attention to population health, health promotion, disease prevention, and the need to develop new strategies for managing chronic diseases. These strategies typically aim to limit exacerbations leading to necessary inpatient hospital treatment, improve management of symptoms and slow the progression of illness. They rely on developing team approaches to primary care, which rely on improved information systems, telemedicine and integrated medical records.

In the US, the ACA encourages the formation of “Accountable Care Organizations” (ACOs) that would bring hospitals and other health care providers into new partnerships to care for well-defined territorial populations (Miller 2011). Likewise, in France, the HPST Law (*Hôpital, Patient, Santé et Territoire*) of 2009 created new agencies for each of France’s 21 regions, which now consolidate health insurance, public health and hospital regulation functions so as to organize a range of services, including medical homes, for each French region. The ACA created Medicare’s Hospital Readmissions Reduction Program (HRRP) and required the Center for Medicare and Medicaid Services (CMS) to implement

pay-for-performance policies designed to reduce hospital readmissions. Starting in 2013, the HRRP withheld up to 1 per cent of regular reimbursements for hospitals that have high rates of hospital readmissions within 30 days of discharge due to heart attacks, heart failure and pneumonia. During the first year of the program, CMS penalized “more than 2,200 hospitals ... an aggregate of about \$280 million” (CMS 2014). CMS may expand the list of conditions for which it will penalize hospital readmissions at a later date.

Curiously, as is often the case, European health care systems are influenced by US policy interventions and studies – even in the absence of evidence from the US that these interventions are effective. So it seems with the problem of hospital readmissions in France. A recent literature review on avoidable rehospitalization of older persons, by the French High Authority on Health (HAS), cites no French studies on the topic and relies largely on international ones – mostly from the US – to recommend strategies for reducing unplanned rehospitalization.

Given the convergence of policy priorities around improving coordination among hospitals and other health care providers, a comparison of hospital readmission rates and the factors that may explain them can provide important insights about the French and US health care systems. In addition, such a comparison illustrates a methodological approach to comparative research: how an empirical inquiry along a single indicator can reveal broader issues about system-wide and policy differences across health care systems.

In this paper, we examine rates of readmission in three regions of France: Ile de France (IDF) – the greater Paris metropolitan region, Nord-Pas-de-Calais (NPC) around Lille, and Provence-Alpes-Côte d’Azur (PACA) around Marseille. Our recent national comparison of all-cause readmission rates among older people (65+), within 30 days following hospital discharge, found that the readmission rate in France (14.7 per cent) is significantly lower than in the US (20 per cent) (Gusmano et al. 2014). We focused on rehospitalizations within 30 days following discharge, among the population 65+, because most recent US studies rely on Medicare data and we wanted to compare rates in France with those in the US.

Our examination of rehospitalization rates in France, at the national level, was limited, however, because we were unable to examine the relationship between neighborhood income and rehospitalization. This is significant because income, in the US, is strongly associated with rehospitalization (Lindenauer et al. 2013). Furthermore, in a previous analysis of hospital discharges for ambulatory care sensitive conditions (ACSC) and the use of revascularization, we found that neighborhood income was an important determinant of access to care in the three French regions we examine in this paper (Gusmano et al. 2013). By adopting the same methods we used in our 2013 comparison of hospital discharge rates for ACSC and revascularizations in three French regions, we are able to investigate whether neighborhood income also helps to explain differences in rehospitalization within France.

2. Factors that Influence Hospital Readmissions

A growing number of studies have documented the problem of hospital readmissions in the US, particularly among the Medicare population (Jencks et al. 2009; Boutwell et al. 2011; Epstein et al. 2011). They suggest that many of these unplanned readmissions that occur within 30 days of the initial hospitalization can be avoided and may represent poor hospital care as well as poor coordination among hospitals and other health care providers. There is also evidence in the US that better access to primary care results in lower hospital readmissions (Brooke et al. 2014; Cavanaugh et al. 2014; DeLia et al. 2014). Finally,

hospitals serving poorer communities and having a larger share of uninsured and Medicaid populations have significantly higher rates of hospital readmissions than those in wealthier communities serving well-insured individuals (Arbaje et al. 2008; Joynt et al. 2011).

The health of patients clearly has an impact on the probability of readmission. Patients with more severe health problems, a deteriorating health condition and multiple comorbidities are more likely than healthier patients to be readmitted following discharge (Epstein et al. 2011). Beyond the observation that sicker patients are more likely to be readmitted, most of the focus has been on a combination of discharge planning, the availability and use of follow-up care from post-acute and long-term care providers, coordination of care between hospital and community-based providers – as well as coordination among providers in the community and communication between clinicians and informal caregivers. Discharge planning encompasses some of the factors listed above because a good plan would explain to patients what they need to do after leaving the hospital and would also identify all of the professionals, family and friends that will take responsibility for the patients' care after hospital discharge.

Good planning alone, however, cannot overcome inadequate care in the hospital (including medical errors), premature discharge due to inadequate hospital reimbursement or an inadequate supply of beds, the failure of patients to comply with instructions or the inadequacies of health care organization outside of hospitals (Jencks et al. 2009; Boulding et al. 2011; Cohen et al. 2012).

A common finding in the literature is that patients who are readmitted to the hospital within 30 days often fail to have a follow-up appointment with a community-based provider following hospital discharge (Jencks et al. 2009; Boutwell et al. 2011; Cohen et al. 2012). According to the Institute for Health Care Improvement (IHI 2011), follow-up appointments within 48 hours after discharge are important for patients at high risk for readmission. Not surprisingly, patients who have been in the hospital more than once during a calendar year are at greater risk for hospital readmission. Boutwell and colleagues (2011) emphasize that follow-up need not be delivered by a physician, particularly for people who live in areas with a low density of primary care physicians.

We have already documented that French hospital discharge rates for ACSC are significantly lower than in the US (Gusmano et al. 2013). Since one factor that contributes to high rates of hospital readmissions is the failure of patients to receive primary care services following hospital discharge, one might expect that good access to primary care, combined with the relatively good health of the French population, keeps hospital readmission rates in France low in comparison with the US. On the other hand, France's health system is notorious for poor hospital discharge planning and a lack of coordination among medical providers (Schoen et al. 2012) so one might also expect that rates of hospital readmission in France would be high despite offering extensive access to primary care.

Based on our previous work on hospital discharge rates for ACSC and revascularization in the French regions we study here, one might also expect that hospital readmission rates could be influenced by neighborhood-level income. Although surveys by the Commonwealth Fund suggest that the French health care system is marked by poor discharge planning, there are no measures of this factor in the French hospital administrative database, so our capacity to investigate poor discharge planning as a reason for hospital readmissions in France is limited. Nevertheless, we find that an array of patient, area-wide and hospital characteristics are associated with readmission in France.

3. Methods

3.1. Data Sources

The hospital administrative data for this study are from the SNIIRAM (Système National d'Informations Inter Régimes de l'Assurance Maladie) which also includes the national hospital reporting system, PMSI (Programme de Médicalisation des Systèmes d'Information). The SNIIRAM is a centralized administrative database of all health services reimbursed under France's NHI program (Goldberg et al. 2012). The PMSI, highly influenced in its design by Medicare's reimbursement system, based on diagnosis-related groups (DRGs), centralizes hospital discharge data by diagnosis, procedure, age and residence of patients (ATiH 2014). We analyze 2010 hospital discharge data in three regions: IDF, NPC and PACA. The data are for residents of these regions irrespective of whether they were hospitalized within or outside of their regions.

In contrast to Medicare data on disability and social security income, analyzed by Jencks et al. (2009), the SNIIRAM database does not provide good proxies for income. However, data from our study of these regions, on neighborhood-level income and access to primary care (as measured by hospital discharge rates for ACSC, a well-established measure of access to timely and effective primary care), enable us to extend our previous work based on a national comparison of hospital readmissions in the US and France.

3.2. Definitions

We follow the same methods and definitions used by two of the three key US studies of all-cause rehospitalization (Jencks et al. 2009; Gerhardt et al. 2013). These studies differ from the definition adopted by Goodman et al. (2011), who exclude hospitalizations in the 90 days prior to the cohort admission date. To calculate rehospitalization rates, we use an individual identifying variable in the PMSI dataset to track unique individuals (65+) hospitalized in France in 2010. As in the two US studies previously noted, we follow the same three basic definitions in calculating the rehospitalization rates. First, we present the total number of rehospitalizations within 30 days of discharge, as a percentage of total hospital discharges for all acute-care hospitals. Second, we include hospital discharges for all patients 65+ admitted from their homes (including nursing homes) and discharged back to them. Third, we exclude all one-day admissions for such treatments as chemotherapy, radiation therapy and hemodialysis; and patients transferred to other acute-care hospitals.

Consistent with the methods adopted in these US studies, our denominator counts all admitted patients only once. The rehospitalization rate is defined as the first hospital admission from home within 30 days following discharge. We do not report deaths that occurred during or after rehospitalization so as not to double-count. Also, like Jencks and colleagues, we assume that the probable share of planned readmissions, as a percentage of all readmissions (10 per cent) is the same in France as in the US.

3.3. Descriptive Statistics

To calculate rates of hospital readmission, we use an individual identifying variable in the PMSI dataset to track all hospitalizations for unique individuals in each of the three regions. Based on the discharge dates recorded in the PMSI dataset, we are able to identify all hospital readmissions that occur within 30 days of discharge. We also obtained the

primary diagnosis associated with the initial hospital discharge and the subsequent hospitalizations for all patients who experience a hospital readmission.

3.4. Logistic Regression

The dependent variable in our regression models is a dummy variable that captures whether each individual in the database experienced at least one hospital readmission within 30 days of an initial hospital discharge in 2010. We ran four different models: one with a stepwise selection, one with a backward selection, one with a forward selection and the last with a step-by-step selection. All these models yielded the same results so we present the step-by-step model. We present separate models for patients initially hospitalized with medical and surgical conditions. In both models, the independent variables include five-year age bands, gender, hospital ownership type (private or public), length of stay, and the Charlson index of morbidity (Table 1). We selected the variables in our model based on a review of the literature that other studies have identified as potentially important factors for explaining 30-day rehospitalization and our previous analysis of rehospitalization in France (Billings et al. 2006; Jencks et al. 2009; Allaudeen et al. 2011; Berenson et al. 2012; Gerhardt et al. 2013). The Charlson index predicts the ten-year mortality for a patient based on their comorbidities.¹ Patients receive a score for each comorbid condition on the hospital record and the probability of death within ten years associated with each. They are then assigned a ranking of 0–3 based on their cumulative score. Finally, we include median household income for each neighborhood of residence,

Table 1. Descriptive statistics for all variables in logistic regressions

	IDF (<i>n</i> = 245,351)	PACA (<i>n</i> = 168,158)	NPC (<i>n</i> = 115,573)
Patients readmitted	35,844 (14.6%)	24,132 (14.4%)	16,548 (14.3%)
Age			
65–69	50,690 (20.7%)	33,618 (20.0%)	20,655 (17.9%)
70–74	50,140 (20.4%)	33,112 (19.7%)	24,940 (21.6%)
75–79	52,287 (21.3%)	35,787 (21.3%)	26,650 (23.1%)
80–84	44,937 (18.3%)	31,757 (18.9%)	22,474 (19.5%)
>85	47,297 (19.3%)	33,884 (20.2%)	20,854 (18.0%)
Female	131,124 (53.4%)	86,930 (51.7%)	65,951 (57.1%)
Private hospital	86,311 (35.2%)	64,048 (38.1%)	79,289 (68.6%)
Charlson			
0	123,395 (50.3%)	86,300 (51.3%)	54,752 (47.4%)
1	33,803 (13.8%)	24,927 (14.8%)	18,087 (15.7%)
2	28,539 (11.6%)	19,473 (11.6%)	13,165 (11.4%)
3	59,614 (24.3%)	37,458 (22.3%)	29,569 (25.6%)
Length of stay	6,1 ± 7,0	5,8 +/- 6,1	6,0 +/- 6,4
Income			
Lowest quartile	64,657 (26.5%)	37,020 (22.1%)	29,087 (25.4%)
Second quartile	57,295 (23.5%)	36,358 (21.7%)	28,420 (24.8%)
Third quartile	61,968 (25.4%)	50,685 (30.2%)	29,430 (25.7%)
Highest quartile	59,777 (24.5%)	43,751 (26.1%)	27,722 (24.2%)

which is defined as an aggregation of communes established by the French government as a “PMSI area”. We include area income quartiles in each model.

4. Findings

The overall rates of hospital readmission among older people (65+) are similar in the regions we examine. As a percentage of all admissions, they are respectively 14.6 in IDF, 14.3 in NPC and 14.4 in PACA (Figure 1). In all three regions, initial hospitalizations for ischemic heart disease (IHD), congestive heart failure (CHF), cataract surgery, arrhythmia or conduction abnormalities, and prostate cancer surgery were the most common diagnoses among patients who were readmitted.

The logistic regression models for both medical and surgical conditions in all three regions reveal a small influence for median area household income on readmission rate (Tables 2 and 3). The odds of readmission increase with age for medical and surgical conditions, but the odds for medical conditions begin to decline at the age of 85 in two of the three regions (IDF and NPC). There is also a significant positive relationship between the Charlson index and the odds of readmission. In addition, there is a strong relationship between gender and readmission in all three regions. Consistent with previous analysis of ACSC, the odds of readmission are lower for women than men (Gusmano et al. 2010).

For surgical conditions, the odds of readmission are lower among patients hospitalized in private for-profit, compared with public and private non-profit hospitals (Table 3). In IDF and PACA, the odds are respectively 12 and 9 per cent lower; in NPC 24 per cent lower. In contrast, among patients hospitalized for medical conditions, our findings are not consistent across regions (Table 2). In IDF, there is little difference in the odds of readmission between patients treated in public and private hospitals. In PACA, the odds of readmission are about 5 per cent *lower* in private for-profit hospitals; in NPC they are 6 per cent *higher*.

Figure 1. Hospital readmission rate within 30 days following discharge, population 65+, 2010

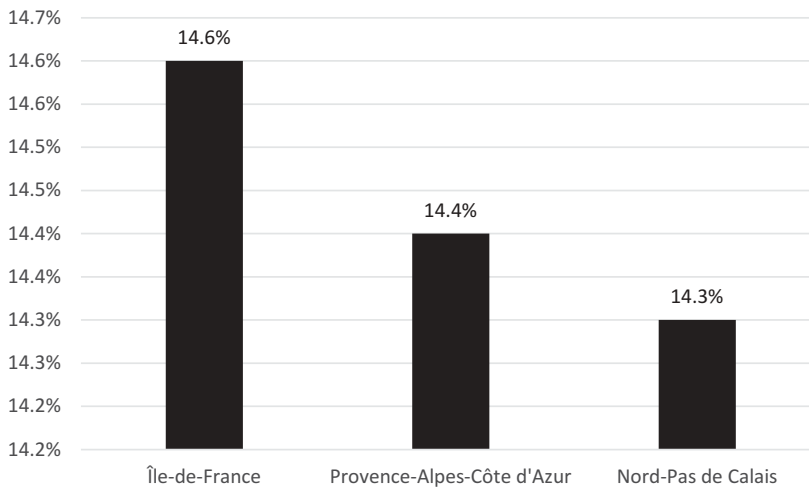


Table 2. Logistic regression results for medical conditions, 2010

Effect	IDF		PACA		NPC	
	Exp (B)	P value	Exp (B)	P value	Exp (B)	P value
Age 70–74	1.016	0.481	1.024	0.380	1.035	0.294
Age 75–79	1.041	0.060	1.024	0.0375	1.038	0.236
Age 80–84	1.045	0.045	0.995	0.854	1.005	0.873
Age 85+	0.960	0.060	0.944	0.023	1.039	0.240
Reference category: Age 65–69						
Female	0.790	0.000	0.778	0.000	0.767	0.000
Reference category: Male						
Private hospital	0.987	0.415	0.948	0.004	1.059	0.017
Reference category: Public hospital						
Charlson = 1	1.075	0.001	1.107	0.000	1.017	0.565
Charlson = 2	1.589	0.000	1.531	0.000	1.353	0.000
Charlson = 3	1.826	0.000	1.736	0.000	1.532	0.000
Reference category: Charlson = 0						
Length of stay of initial hospitalization	1.005	0.000	1.006	0.000	1.013	0.000
Lowest quartile income	0.982	0.324	1.077	0.001	1.035	0.201
Second quartile income	1.033	0.095	1.071	0.004	1.036	0.195
Third quartile income	0.995	0.791	1.020	0.379	1.025	0.358
Reference category: Fourth quartile income						

Table 3. Logistic regression results for surgical conditions, 2010

Effect	IDF		PACA		NPC	
	Exp (B)	P value	Exp (B)	P value	Exp (B)	P value
Age 70–74	1.159	0.000	1.061	0.198	1.112	0.080
Age 75–79	1.319	0.000	1.281	0.000	1.336	0.000
Age 80–84	1.509	0.000	1.477	0.000	1.590	0.000
Age 85+	1.834	0.000	1.726	0.000	1.876	0.000
Reference category: 65–69						
Female	0.910	0.000	0.909	0.002	0.820	0.000
Reference category: Male						
Private hospital	0.880	0.000	0.913	0.003	0.761	0.000
Reference category: Public hospital						
Charlson = 1	1.180	0.000	1.195	0.000	1.143	0.026
Charlson = 2	1.404	0.000	1.670	0.000	1.448	0.000
Charlson = 3	1.934	0.000	2.176	0.000	2.035	0.000
Reference category: Charlson = 0						
Length of stay of initial hospitalization	1.016	0.000	1.024	0.000	1.027	0.000
Lowest quartile income	1.181	0.000	1.057	0.199	1.206	0.001
Second quartile income	1.137	0.003	1.121	0.007	1.192	0.002
Third quartile income	1.166	0.000	1.043	0.280	1.162	0.007
Reference category: Fourth quartile income						

5. Discussion

Our findings across three French regions are consistent with our previous national comparison of all-cause readmission rates among older people (65+) within 30 days following hospital discharge (Gusmano et al. 2014). In France, the rate was 17.7 per cent for medical conditions and 9.1 per cent for surgical conditions, compared with 21.1 per cent and 15.6 per cent, respectively, in the US (Jencks et al. 2009). Moreover, in the US, Jencks found that for older patients with medical conditions who were readmitted to hospitals within 30 days of discharge there was no record of outpatient visits for 50 per cent compared with 43 per cent in France (Gusmano et al. 2014), which suggests that there may be more access barriers in the US – even for Medicare patients – than under French NHI. In addition, we found that there is relatively little regional variation in rehospitalization rates in France compared with the US (Gusmano et al. 2014).

Based on these findings, and the results of our logistic regression on the factors that could explain readmission rates across the three regions, we suggest five plausible hypotheses that explain why rates of hospital readmission are lower in France compared to the US. Although testing these hypotheses is beyond the scope of this paper, we conclude by suggesting how our findings and hypotheses point to salient system-wide differences among the US and French health systems and respective health policies.

Our first plausible hypothesis for why France has a lower rate of hospital readmissions for older people than the US is that France provides better access to primary care. Hospital discharges for ACSC – a widely accepted indicator of access to timely and effective primary care – are lower in France than in the US. Thus, one could reasonably argue that better access results in more timely attention to problems following hospital discharge.

Our second plausible hypothesis is that the older French population is healthier than their US counterparts whether one measures population health as life expectancy (at birth or at 65 years of age), disability levels among older people or premature mortality. As shown in our regressions in the three regions and for Medicare beneficiaries in the US (Jencks et al. 2009), healthier individuals have a lower odds ratio for hospital readmission than their less healthy counterparts. This is consistent with the finding that rehospitalization rates are lower in France than in the US.

Our third plausible hypothesis stems from the fact that the average hospital length of stay for patients age 65+, in France, is just over seven days compared with 5.5 in the US.² This difference may reflect aggressive efforts by US hospital managers to reduce hospital lengths of stay, which results in premature discharge. Although our analysis suggests that length of stay does not predict the odds of hospital readmission among patients hospitalized for medical conditions – and makes only a small difference for patients hospitalized for surgeries *within* France (Tables 1, 2 and 3), it is plausible to suggest that the 1.5 day difference in length of stay explains part of the difference between the US and France.

A fourth plausible hypothesis is that French nursing homes do not face the same financial incentive to rehospitalize residents. When a patient from a skilled nursing facility (SNF), dually eligible for Medicare and Medicaid in the US, is hospitalized in an acute-care hospital, the skilled nursing facility receives a higher Medicare reimbursement rate when that patient is discharged back to that facility (Moore et al. 2014). Because Medicare offers full coverage for the first 20 days only, SNFs have an incentive to send patients back to the hospital more frequently than may be necessary (Mor et al. 2010). The equivalent of SNFs in France do not face the same incentive. Because rehospitalization

among dually eligible SNF patients in the US is a significant contributor to the overall rates of Medicare readmissions (Mancuso et al. 2014), this financial incentive may also explain why French rates of hospital readmission among patients aged 65+ are lower.

A fifth plausible hypothesis for why rehospitalization rates are lower in France could be related to low-income populations and their odds of being rehospitalized. Our logistic regression indicates that the odds of rehospitalization for surgical conditions are consistently higher for those living in low-income neighborhoods. The pattern is less clear for medical conditions, but the effect of income as measured by disability and SSI status in the US (Jencks et al. 2009) is much higher (11–13 per cent).

6. Concluding Observations

6.1. *France Provides Better Access to Primary Care*

Primary care is often assessed with regard to integration and coordination of health care services. In this respect, there is inadequate communication, in France, between full-time salaried physicians in public hospitals and physicians working in the community. Although general practitioners in the fee-for-service sector have informal referral networks to specialists and public hospitals, there are no formal institutional relationships that assure continuity of medical care, disease prevention and health promotion services, post-hospital follow-up care, and more generally systematic linkages and referral patterns between primary-, secondary- and tertiary-level services.

The presumed lack of coordination in the French health care system is one reason that France has been ranked as having one of the worst systems of primary care among Organization for Economic Cooperation and Development (OECD) nations. Using 1995 data, France was ranked below the United States, Germany and Switzerland (Macinko et al. 2003). This ranking system uses a 0–2-point scale for each of ten dimensions including regulation; financing; dominant type of primary care provider; access; longitudinality; first contact; comprehensiveness; coordination; family centered; community centered (Macinko et al. 2003). France received a score of 0 for not requiring first contact with a primary care provider; failing to use guidelines for the transfer of information between primary care providers and other levels of care; failing to regulate the distribution of primary care providers; requiring “cost-sharing” for primary care visits; not having comprehensive services available at primary care sites; failing to organize patient records by “family” rather than by individual; and failing to use community-based data in primary care.

Despite these problems and the more recent survey (Schoen et al. 2012) noting France’s poor hospital discharge planning and lack of coordination among medical providers, it is difficult to refute the proposition that France provides better access to primary care than the US for most of its population. French NHI covers the entire population legally residing in France, who have met the basic residency requirements (Rodwin 2003). Despite co-payments resulting in out-of-pocket expenditures, most of the population have complementary insurance through a system that resembles Medigap coverage for US Medicare beneficiaries (Rodwin and LePen 2005), thus minimizing financial barriers to health care in comparison to the US. There are no deductibles, pharmaceutical benefits are extensive and patients with debilitating or chronic illness are exempted from paying coinsurance when they consult with physicians in health centers, hospital outpatient

departments or physicians in private practice who accept negotiated fees as payment in full. In addition, roughly half of French physicians are general practitioners and, since 2005, the French NHI funds require patients to register with a primary care physician (“*médecin traitant*”) for a referral before visiting a specialist. If patients fail to receive a primary care referral first, the reimbursement to the specialist visit is reduced. Along with better access to primary care, it is also well documented that French social policies, like those of Scandinavian nations and Germany, spend proportionately more, as a share of their GDP, on social programs that address other factors such as income support, housing and child care (Bradley and Taylor 2013), all of which are associated with better health status and, as noted earlier, may contribute to reducing rehospitalization rates.

6.2. *France’s Longer Hospital Stays Reflect a Different Organizational Context*

Although the difference between the French and US lengths of stay in hospital, based on our own calculations for the older population (65+), is consistent with OECD data for all ages (OECD 2013), it is difficult to assess the relative importance of this hypothesis in explaining France’s lower hospital readmissions. The difference in hospital lengths of stay may, however, reflect the different organizational and reimbursement policies across France and the US.

In contrast to the US health care system, where roughly two-thirds of all acute hospital beds are in the private (not-for-profit) sector and slightly less than one-third in the public sector, in France 65 per cent, 25 per cent and 10 per cent, respectively, of all acute inpatient beds are in public hospitals, private for-profit hospitals and private non-profit hospitals. Measured in terms of all acute inpatient hospital stays, 54 per cent are in public hospitals, 36 per cent in private for-profit hospitals and 10 per cent in private non-profit hospitals (DGOS 2010). Yet another contrast in the organization of hospitals is that in France, the public sector has a quasi-monopoly on teaching and medical research, whereas in the US these functions are more evenly divided. Finally, French public and private non-profit hospitals account for respectively 67 per cent and 7.8 per cent of all medical stays and 36.4 per cent and 7.4 per cent of surgical stays (Or and Belanger 2011).

Physicians based in public hospitals are salaried on a part-time or full-time basis but physicians in for-profit hospitals are paid on the basis of a private practice fee schedule. There are other differences in hospital payment among public and private institutions that reflect their relative contributions to public service functions such as education, research and public health programs (missions d’intérêt général et à l’aide à la contractualisation – MIGNAC – allowances), but case-mix-based payment, as measured by DRGs, have been applied to all acute care hospitals since July 2005 (Schreyögg et al. 2006). This reimbursement system provides some incentives to increase patient admissions so long as revenues exceed costs. However, since reimbursement rates are adjusted if volume increases exceed projected targets, there are probably weaker financial incentives to increase volume than in the US and this could be one explanation for why hospital lengths of stay remain higher in France.

As noted earlier, the French equivalent of skilled nursing homes in the US do not share the same financial incentives to rehospitalize their dually eligible SNF patients, which suggests the importance of health policies in affecting hospital readmissions. Before 2004, when public hospitals were funded on the basis of global budgets while private for-profit hospitals were funded based on DRG-based discharges, one might have argued that the

private sector faced a perverse incentive, at the margin, to err on the side of more rather than fewer hospital admissions. But since 2004/2005, an activity-based DRG payment system (T2A) was introduced for all French hospitals. Public hospitals that formerly operated on the basis of global budgets have been subsidized until 2012 to reflect their historical costs, but from 2008, all acute public hospitals were funded on the same DRG-based system as private for-profit hospitals. The main incentives created by DRG-based hospital payment, for public and private for-profit hospitals alike, are to increase activity and improve efficiency. On the one hand, one might argue that DRG-based reimbursement in France, as in the US, provides hospitals with a potentially perverse incentive to reduce lengths of stay and increase admissions (including readmissions). However, since French DRG-based reimbursement rates are reduced if volume exceeds inpatient activity targets, hospitals cannot be sure that increasing volume will necessarily lead to more income the following year (Or and Belanger 2011). It is not clear that this incentive reduces volume because hospital practitioners may focus on increasing the hospital budget in the current year without regard to the impact of this increase on the DRG-based reimbursement rates in the following year

6.3. *France Has Less Inequity in Access to Health Services than the US*

For low-income populations served disproportionately by public safety-net hospitals in the US, there is considerable resistance to the decision by CMS to implement financial penalties for high rates of 30-day readmission among Medicare beneficiaries for heart attacks, congestive heart failure and pneumonia. As noted earlier, the argument is that patients whose odds of readmission are highest, in the US, have lower income, higher morbidity and suffer from lack of primary care that is not well coordinated with hospital physicians (Joynt and Jha 2012; Ryan and Blustein 2012). Based on such studies, French policymakers have been reticent to implement a national policy of hospital pay for performance based on a readmissions indicator whose validity as a measure of hospital performance is a subject of considerable controversy.

In the meantime, our analysis raises questions about our finding that for surgical conditions, private for-profit hospitals, in all three French regions, have lower odds of rehospitalizing their patients than public hospitals. Since physician fees are included in the hospital DRG rates for public hospitals but billed separately for the private for-profit hospitals, a possible explanation may be that some financial incentives still encourage physicians in for-profit hospitals to have a lower patient morbidity threshold for readmission. Since we have no evidence to support or refute such an explanation, we go on to interpret our results in the context of well-known differences between the public and private for-profit sector in France.

As already noted, public hospitals account for a disproportionate share of medical admissions (Or and Belanger 2011). Based on analysis of 2006 PMSI data, 80 per cent of public hospital admissions included 155 major diagnostic categories (*groups homogènes de malades* – GHMs) whereas the same percent of private for-profit hospital admissions were concentrated on 82 GHMs. This indicates that the public sector typically handles a broader range of cases rather than focusing on the most common ones. Moreover, based on an analysis of more complicated GHMs, whether one examines surgery or medicine there is some evidence that public hospitals handle these GHMs with more frequency (Or et al. 2009). An example of this pattern concerns one of our readmission GHMs (gastroenteritis and other related GI

diagnoses). Public hospitals account for a significantly higher share of the more complicated cases within this category – 71.4 per cent of R10 (abdominal and pelvic pain) and 84.2 per cent of A09 (diarrhea and gastroenteritis of presumed infectious origin). Finally, when one compares the age of patients across GHMs of the public and private for-profit sectors, patients over 80, and even more so over 90 years old, are disproportionately cared for by public than by private for-profit hospitals (Or et al. 2009).

This evidence lends support to the hypothesis that public hospitals in France may more often deal with complex cases and older patients *within* specific GHM categories, which place them at higher risk for readmission, particularly if care is not well coordinated following inpatient hospitalization. Our regression analysis, however, indicates that the reality is more complex. While the difference between public and private hospitals is much greater and consistent across all three regions when we focus on readmissions for surgical procedures, with respect to medical conditions, type of hospital makes no significant difference.

Another possible explanation is that private for-profit hospitals in France have an easier time coordinating hospital and community-based care simply because the doctors caring for patients in these hospitals may continue to see them in the community or at least communicate more effectively with community providers than their public hospital colleagues. It is not clear whether this, or the differences in the health status of patients at public and private hospitals, explains the differences in odds of rehospitalization that we observe for surgical conditions. Our analysis cannot answer these questions, but our findings suggest that the issue of hospital readmissions is as significant in France as it is in the US and should receive much greater attention in France.

Understanding differences between public and private for-profit hospitals may help France further reduce its rate of rehospitalization, but the more important finding from our comparison is that, in France, the rate of 30-day rehospitalization for older people is significantly lower than that for Medicare beneficiaries in the US. Although some previous studies criticize the French health care system for poor discharge planning and a lack of coordination, this rehospitalization as an indicator of care coordination suggests that the French system is working relatively well in comparison to the US. Another important finding from our comparison concerns the relationship between income and rehospitalization. Poorer Medicare patients in the US have a higher odds ratio for 30-day rehospitalization than their wealthier counterparts. In France, however a patient's neighborhood-level income has little effect on rehospitalization.

Notes

1. ICD-10 codes used to calculate this index are available from authors on request. They were derived from: Deyo et al. (1992) and Quan et al. (2005).
2. Calculated by the authors based on the PMSI and US National Hospital Discharge Survey datasets, 2010.

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