Use of Inpatient Imaging Services by Persons Without Health Insurance
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**Background:** Americans without health insurance generally receive fewer health care services than those with insurance. Less studied are the specific types of services for which the uninsured face access and utilization differences. This article fills in some of the knowledge gaps by presenting comparisons between uninsured and insured individuals in the use of imaging services in the hospital inpatient setting.

**Methods:** The primary data source for this study was the 2003 National Hospital Discharge Survey. The principal source of payment was used to define insurance status. Global relative value units were assigned by imaging procedure. To ensure sufficient numbers of observations, individual imaging procedures were aggregated into 6 modalities. Multivariate regression was used to estimate the utilization and value of imaging services as a function of insurance status and other control variables.

**Results:** Just over 9% of inpatients were uninsured (range, 15.7% aged 18-24 years to 5.8% aged 55-64 years). After controlling for measurable factors, uninsured hospital inpatients who underwent imaging received the same mean number of imaging services (1.51) of the same mean value (11 relative value units) as those for comparable insured persons. The uninsured received fewer interventional and image-guided procedures but more CT studies than insured patients ($P < .05$).

**Conclusions:** Because insurance status does not seem to significantly influence the quantity or value of imaging services received by hospital inpatients who receive imaging, efforts to assist uninsured patients with imaging needs would be better directed elsewhere than the hospital inpatient setting.

**Key Words:** Uninsured, hospital inpatients, imaging services

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**INTRODUCTION**
Approximately 51 million Americans, or 16.7% of the population, were without health insurance for some or all of 2009 [1]. Lack of insurance is associated with less preventive care, delays in diagnosis, and unnecessary deaths. Further exacerbating the plight of the uninsured is that they face higher fees than the insured because the uninsured do not benefit from reduced fees negotiated by managed care organizations or public payers on behalf of persons with insurance.

Uninsured Americans are a heterogeneous group [2-4]. The uninsured differ in their ability to pay for health care. Some are able to pay something, while others are “medically indigent” (ie, financially unable to pay for medical care).

Although being without coverage does not prevent a person from receiving emergent health care, the uninsured are less likely than the insured to seek perceived needed care. When they do, they usually receive fewer health care services of possibly lower quality than persons with coverage [5,6]. The uninsured must pay out of pocket or receive uncompensated care; either way, they face access and financial barriers to needed services. Even for patients who secure a visit to a primary care doctor, a substantial proportion are unable to follow up on advice for prescription medications, laboratory tests, or diagnostic procedures because of cost [7]. Other research has shown that a lack of insurance significantly reduces the chances of patients undergoing screening tests [8-10].

A finding of no significant difference between uninsured and insured patients who are otherwise similar would suggest that the health care safety net is working in the hospital setting among those who are admitted to the hospital. Emergency departments in many American cities are overwhelmed, forcing ambulances to divert patients to other settings and delay care [11]. On the other hand, identifying areas in which the uninsured experience deficits would point the way to desirable changes in hospital practices, statutes, and other public policies, especially if it were found that delaying or denying needed services
care results in worse long-term health outcomes and higher health care spending. The United States spends nearly $100 billion per year to provide uninsured persons with health services, often for preventable diseases or diseases that physicians could treat more efficiently with earlier diagnosis [12]. Such a situation has been shown in appendicitis care in at least 3 studies in which insurance status was linked to different outcomes [13].

These studies notwithstanding, there is a lack of research on the specific types of imaging services for which the uninsured face access and utilization deficits. This article fills in some of the knowledge gaps by presenting comparisons between uninsured and insured persons in the use of imaging services in the hospital inpatient setting.

**METHODS**

The primary hypothesis was that patients in the inpatient setting receive the same type and amount of imaging services regardless of health insurance status. Testing that hypothesis was the principal focus of the study.

The primary data source for this study is the 2003 National Hospital Discharge Survey (NHDS), which annually collects medical, demographic, and payment information from a sample of discharge records selected from a national sample of nonfederal, short-stay hospitals [14]. The NHDS collected data from a sample of approximately 270,000 inpatient records acquired from a national sample of about 500 hospitals. Only hospitals with average lengths of stay of <30 days for all patients, general hospitals, and children’s general hospitals are included in the survey. Two data collection procedures are used in the survey. One is a manual system in which sample selection and medical transcription from the hospital records to abstract forms is performed by the hospital’s staff members or by staff members of the US Census Bureau on behalf of the National Center for Health Statistics. The other data collection procedure is an automated system in which the National Center for Health Statistics purchases electronic data files from commercial organizations, state data systems, hospitals, or hospital associations. The medical abstract form and the automated data tapes contain items that relate to the personal characteristics of patients. These items include age, sex, race, ethnicity, marital status, and expected sources of payment. Medical information about patients includes diagnoses and procedures coded to the *International Classification of Diseases*, ninth rev, *Clinical Modification* (ICD-9-CM).

Procedure descriptions were obtained from the American Medical Association’s *Current Procedural Terminology*® (CPT®) [15]. An index to procedures was used for the ICD-9-CM codes [16]. The Web sites of CMS and the Federal Register were sources for data and information on relative values of procedures, diagnosis-related group (DRG) relative weights, major diagnostic categories, and relative values assigned to ambulatory payment classifications from HOPPS [17-20].

The “principal source of payment” field in the NHDS was used to define who was insured and who was uninsured. Approximately 91% of discharges had some form of private or public third-party payment; the inpatients associated with these records were defined as “insured.” Seven and one-half percent were categorized as “self-pay” and 0.6% as “no charge.” These latter two were together defined as “uninsured.”

Procedures in NHDS records use ICD-9-CM procedure codes. The NHDS contains 4 procedure code fields. Using code descriptions, 151 imaging services codes were identified. All records associated with diagnostic imaging, interventional radiology, or nuclear medicine were initially selected for analysis.

The analyses in this study pertain to inpatients who are considered imaging patients. An imaging patient is one who had 1 or more imaging services comprising 1 or more modalities among the 4 (and only 4) procedure code fields in the NHDS; this is the definition used for calculating total imaging services received during a hospitalization. For comparisons across modalities, we assigned to a particular modality only those patients who received at least 1 service of that modality and no other modality. This approach allowed us to assign unambiguously to a modality a patient record with ≥2 imaging services.

Persons aged ≥65 years, virtually all of whom are covered by Medicare insurance, were excluded from this analysis because there is no “uninsurance effect” in the Medicare beneficiary population. The 2003 NHDS has 5,593 imaging-related records for persons aged <65 years, encompassing 103 imaging procedure codes (ie, no services were recorded in the 2003 NHDS for 48 of the 151 total imaging service codes).

The top 10 imaging service codes by frequency accounted for >70% of all imaging services in the NHDS. Clearly, the relative frequency for many individual service codes is small, if not zero. The problem is compounded by the fact that the number of services received by the uninsured is a small fraction of all services.

To facilitate analysis by ensuring sufficient numbers of observations, individual imaging services were aggregated into 6 modalities: ultrasound, CT, interventional radiology, MRI, nuclear medicine, and x-rays other than for mammography that are typically done in the outpatient setting.

To compare services and modalities across patients, it was useful to place a value on a given procedure. Values for ICD-9-CM procedure codes do not exist. However, values for CPT codes do exist in the form of relative value units (RVUs) that have been developed and used for physician payment purposes by Medicare and other payers [21]. A code crosswalk from ICD-9-CM to CPT was created, comparing detailed descriptions of imaging ser-
services for the two systems. The conversion of ICD-9-CM procedures to CPT procedures resulted in 325 CPT imaging codes being associated with 151 ICD-9-CM imaging codes. In terms of 2003 services provided, a crosswalk was obtained for 98 imaging ICD-9-CM codes. The crosswalk enabled global (ie, comprising both professional and technical components) RVUs for imaging services to be brought into the analysis.

In cases for which several CPT codes were associated with a given ICD-9-CM code, frequency counts by CPT code were used to calculate weighted average RVUs for a given ICD-9-CM code. Ultimately, RVUs were obtained to go with each of the 98 ICD-9-CM imaging services codes that were actually performed as indicated in the 2003 NHDS.

The NHDS includes DRG codes. From a CMS Web site, a file was obtained that contains DRG codes, DRG titles, DRG relative weights, and major diagnostic category codes and titles [22]. Diagnosis-related group relative weights reflect the average resource cost required to care for cases in that particular DRG, relative to the average resources used to treat cases in all DRGs [19]. These additional data were merged with the NHDS file by DRG code.

Several alternatives to global RVUs were considered as proxies for valuing procedures and modalities. Briefly, these approaches used either (1) relative values assigned to ambulatory payment classifications from HOPPS or (2) DRG relative weights. None of these alternatives proved to be superior to the original approach on statistical or methodologic grounds.

Hospital inpatient experiences of imaging patients were analyzed in the following ways:

- the number (up to 4 in the NHDS survey) of imaging services received during the inpatient stay and
- the number of global RVUs associated with the imaging services received during the inpatient stay.

Descriptive statistics are presented on the likelihood of uninsurance and the mean number of imaging services and RVUs received for persons who undergo one or more imaging service during an inpatient episode.

Multivariate regression analysis was used to estimate the effect of insurance status on imaging service utilization and RVUs, while controlling for severity of illness and other measurable factors. The approach was to estimate models in which imaging service use was explained by patient demographics, health status, hospital stay experiences, hospital characteristics, and, most important for this study, insurance status.

The models included the following factors that might explain differences in imaging utilization (binary unless otherwise indicated):

- type of admission and source of admission;
- severity of illness: DRG relative weight and major diagnostic category (in index units);
- type of discharge;
- length of stay in days; and
- hospital characteristics: ownership, number of beds, and geographic region.

**Odds Ratios for Being Uninsured by Modality**

An event with a 50/50 likelihood (ie, \( P = .50 \)) has an odds ratio \( (P/[1-P]) \) of 1. When the probability \( P \) exceeds .50, the odds ratio is > 1. This approach was used to estimate the odds that the recipient of a particular imaging modality was uninsured, where \( P \) is the probability of being uninsured.

Logistic regression was used to estimate the likelihood of being uninsured for the average inpatient recipient of a particular modality. Only persons who received a particular modality, and that modality only, were used in computations for that modality. This means that the subset of patients considered here is different than the one used for other analyses. Chi-square statistics were used to test whether an odds ratio significantly differed from 1 \( (P < .05) \).

**RESULTS**

**Characteristics of Hospital Inpatients**

Table 1 presents information on hospital inpatients who received 1 or more imaging service, by several categories. Just over 9% were uninsured, and this ranged from 5.8% to 15.7% depending on age. More than 90% of the uninsured were self-payers. An average of 1.51 imaging services and 11.0 imaging RVUs were received by imaged inpatients. These averages do not differ in a statistically significant sense between insured and uninsured. The percentage of hospital discharges accounted for by uninsured imaging inpatients is presented in column 1. Lack of insurance was more likely among young adults, male patients, African Americans, those who were not married, and patients in government hospitals. Uninsurance was less prevalent for persons in the Northeast and Midwest but more prevalent in the West. These characteristics of the uninsured from the NHDS tend to mirror those from household-based surveys.

Column 2 of Table 1 presents the mean number of imaging services received during an inpatient episode. Older persons tended to receive more imaging, as did some nonwhite groups, marital separates, patients in government hospitals, and those in the Northeast. Singles, patients in nonprofit hospitals, and persons in the South tended to receive fewer than average imaging services.

Column 3 of Table 1 shows the mean number of imaging RVUs received during an inpatient stay. The patterns across various groups tended to mirror those for the number of imaging services.
Use of Radiologic Modalities

Table 2 presents information for each imaging modality. Interventional radiology constituted the most frequently performed modality in the hospital inpatient setting, accounting for 39% of all imaging procedures. Ultrasound, CT, and x-ray accounted for double-digit percentages. MRI and nuclear medicine services occurred 7% and 3% of the time, respectively. The frequency of x-rays is likely underrepresented in the NHDS because the discharge summary does not capture all tests, only the most expensive ones; x-rays are by far the most common imaging procedure for both inpatients and outpatients, regardless of age.

MRI services had, by far, the greatest mean global RVUs. This was due primarily to the high number of technical component RVUs associated with these types of services. MRI could be termed a “high-value, high-cost” modality. Interventional radiology, CT, ultrasound, and nuclear medicine were near average numerically and could be considered “medium value,” while x-ray was the least costly, or “low value.”

Frequency of Imaging by Modality

Uninsured and insured patients who received at least 1 imaging service can be compared in terms of the likelihood of receiving a particular imaging modality. Figure 1 shows how the modalities compare in terms of relative frequency of occurrence for the two insurance groups. The modality elements of the bars are arranged from the bottom up in decreasing order of mean RVUs. Interventional procedures accounted for a much greater proportion of imaging procedures for insured persons (39%) than for the uninsured (30%). Conversely, CT was much more prevalent in relative terms for uninsured persons (25%) than for persons with insurance (17%). Differences between insurance groups for other modalities were smaller in magnitude and not statistically significant. Bear in mind that

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage Uninsured</th>
<th>Mean Number of Imaging Services Per Discharge</th>
<th>Mean Total Imaging RVUs Per Discharge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>9.1</td>
<td>1.51</td>
<td>11.0</td>
</tr>
<tr>
<td>Age group (y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-17</td>
<td>8.9</td>
<td>1.42*</td>
<td>9.2*</td>
</tr>
<tr>
<td>18-24</td>
<td>15.7*</td>
<td>1.38*</td>
<td>8.7*</td>
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<td>25-34</td>
<td>14.8*</td>
<td>1.40*</td>
<td>9.0*</td>
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<td>35-44</td>
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<td>1.53</td>
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<tr>
<td>45-54</td>
<td>8.8</td>
<td>1.55*</td>
<td>11.4*</td>
</tr>
<tr>
<td>55-64</td>
<td>5.8</td>
<td>1.53†</td>
<td>11.9*</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>10.1*</td>
<td>1.51</td>
<td>11.2†</td>
</tr>
<tr>
<td>Female</td>
<td>7.9</td>
<td>1.50</td>
<td>10.8†</td>
</tr>
<tr>
<td>Race</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>9.4</td>
<td>1.52</td>
<td>11.2</td>
</tr>
<tr>
<td>Black/African American</td>
<td>11.0*</td>
<td>1.56*</td>
<td>10.8</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>7.8</td>
<td>1.72†</td>
<td>12.5</td>
</tr>
<tr>
<td>Asian</td>
<td>5.8</td>
<td>1.47</td>
<td>9.9</td>
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<tr>
<td>Other</td>
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<td>1.52</td>
<td>11.0</td>
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<tr>
<td>Marital status</td>
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<tr>
<td>Married</td>
<td>6.7*</td>
<td>1.51</td>
<td>11.8</td>
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<tr>
<td>Single</td>
<td>11.5*</td>
<td>1.42*</td>
<td>9.7</td>
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<td>1.52</td>
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<td>12.5</td>
</tr>
<tr>
<td>Separated</td>
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<td>1.70*</td>
<td>12.4</td>
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<tr>
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<td>1.52</td>
<td>10.8</td>
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<tr>
<td>Government</td>
<td>17.5*</td>
<td>1.63*</td>
<td>10.3*</td>
</tr>
<tr>
<td>Nonprofit</td>
<td>6.7*</td>
<td>1.47*</td>
<td>11.2*</td>
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<tr>
<td>Northeast</td>
<td>8.1</td>
<td>1.57*</td>
<td>12.1</td>
</tr>
<tr>
<td>Midwest</td>
<td>7.1*</td>
<td>1.52</td>
<td>11.0</td>
</tr>
<tr>
<td>South</td>
<td>9.1</td>
<td>1.46*</td>
<td>11.0</td>
</tr>
<tr>
<td>West</td>
<td>12.3*</td>
<td>1.49</td>
<td>9.6*</td>
</tr>
</tbody>
</table>

Note: Results were weighted to be representative of the entire inpatient population that received imaging services. RVU = relative value unit.

*P < .01 for difference from overall mean; †P < .05 for difference from overall mean.
these figures represent the distribution of imaging procedures actually received but do not address the likelihood of receiving an imaging procedure in the first place. Although not depicted, the distribution of RVUs across modalities was similar to that for the number of procedures.

Insurance status notwithstanding, interventional radiology was the predominant modality for hospital inpatients in terms of frequency, whereas MRI had the highest mean RVUs. Uninsured imaged patients received roughly the same number of imaging services and RVUs as insured imaged inpatients did. The distribution of imaging modalities was more concentrated in CT and less concentrated in interventional radiology for uninsured persons than for insured persons, in terms of both frequency and RVUs. Finally, the uninsured received a lower concentration of higher valued interventional radiology services and a higher concentration of moderately valued CT services, in comparison with their insured counterparts.

### Total Imaging Services

To understand how hospital inpatients compared by insurance group, several multivariate regression models were analyzed. When total imaging services was used as the dependent variable, uninsured imaging patients received a regression-adjusted average of 1.54 imaging services per hospitalization, compared with 1.47 for insured imaging patients. This small difference was not statistically significant, nor is it likely to be clinically important. The magnitude and significance of the insurance group variable were unaffected by the inclusion or exclusion of most of the control variables.

### Total RVUs

Mean RVUs for all imaging procedures were also estimated. Being uninsured had no significant impact on RVUs, as indicated by the lack of statistical significance of the coefficient for the insurance class variable (“uninsured”).

#### Odds Ratios for Being Uninsured by Modality

Figure 2 displays the estimated odds ratios for being uninsured for the several modalities. The modalities are arranged in order of mean imaging RVUs, from least to most. With one exception, all odds ratios differed significantly from 1 ($P < .001$ for all modalities except CT; $P < .05$ for CT). There was a clear tendency for the likelihood of being uninsured to be associated with lower valued modalities. This means that those who received lower valued imaging were more likely to be uninsured. Nuclear medicine, with an odds ratio of nearly 5:1 in favor of uninsured, was an outlier compared with other modalities.

#### Influence of Other Factors on Imaging Use

In addition to insurance status, other variables were examined for their influence on total imaging procedures and RVUs. The number of imaging services and RVUs tended to increase with age. There was no difference between male and female patients in the number of services or RVUs. Whites received more RVUs than non-whites. Compared with married persons, singles had fewer imaging services and RVUs.

Inpatients in government hospitals (excluding federal, military, and US Department of Veterans Affairs) received more imaging services but fewer RVUs than those in private hospitals. The opposite was the case for patients admitted to nonprofit hospitals; these inpatients received more RVUs but fewer imaging services than private hospital inpatients. The volume of procedures...
was not significantly affected by the number of hospital beds; however, as hospital size increased, RVUs increased. Persons with longer hospital stays received more imaging services and RVUs. Patients with more severe illnesses (as proxied by DRG relative weight) received fewer imaging services and RVUs.

Persons with emergency or urgent admissions received more imaging but not more RVUs compared with persons with elective admissions. Those referred from emergency departments received more imaging services and RVUs than persons referred for admission by physicians.

**DISCUSSION**

Uninsured patients who were admitted to the hospital and received at least one imaging service received roughly the same number of imaging services during their stays compared with insured inpatients. Furthermore, the value (in terms of RVUs) of imaging services received by the uninsured tended to be the same as for the insured. Other studies have shown that the uninsured are less likely to get timely medical care and consequently likely to be sicker upon being admitted to the hospital. Therefore, everything else being the same, the uninsured might have been expected to get more imaging in the hospital compared with insured patients.

Using a subset of the sample containing inpatients who received only one imaging modality, there was a bias toward lower valued modalities for uninsured compared with insured patients. The result that inpatient recipients of nuclear medicine imaging in this subset were nearly 5 times more likely to be uninsured than insured stands in stark contrast to the other modalities. Hypotheses for this phenomenon could include that outpatient access to this modality is lacking for uninsured persons but medically indicated. In addition, one surprising finding was that sicker patients tended to have less imaging and fewer RVUs. Although we are uncertain of the explanation for this finding, we speculate that this could be explained by several factors, including shorter lengths of stay, deaths, transfers, and the fact that some patients may have been too sick to undergo higher RVU procedures.

A common belief is that uninsured persons receive fewer health care services than insured persons. Viewed in that context, one might have expected more differences to emerge. On the other hand, given the special circumstances of the hospital setting as well as the role of radiologists in the continuum of care, it may be surprising that any differences were found at all. The Emergency Medical Treatment and Active Labor Act, part of the Consolidated Omnibus Budget Reconciliation Act of 1985, makes it illegal for hospitals to turn people away from emergency rooms because they cannot pay, imposing severe penalties on hospitals that engage in “patient dumping.” Yet hospitals may have explicit policies or implicit practices that limit services to patients who they perceive may be unable or not required to pay, such as uninsured patients admitted through the emergency department.

![Fig 2. Odds ratio of being uninsured for persons using a given modality. Height of bar represents the odds that a person using a particular modality is uninsured rather than insured. Odds ratios were computed from logistic regression. Modalities are sorted in order from lowest to highest mean relative value units. Sources: National Hospital Discharge Survey 2003 and National Physician Fee Schedule Relative Value File 2003.](image-url)
services but that insured patients get too many [27, 28].

Referring physicians likely know the insurance status of hospital inpatients. If they did know that a patient was uninsured, they might have several factors in mind when ordering imaging studies. Referring physicians might order fewer or less expensive procedures in the case of noncharged patients [23]. Moreover, referring physicians might consciously skimp on ordering in the case of self-paying patients, knowing that they would be presented with the bill. Self-payers are usually charged more by hospitals compared with those with insurance, for whom discounts are negotiated by their insurance carriers, notwithstanding how much they negotiate paying [24]. For these reasons, less imaging and less care may occur. None of these rationales is inconsistent with good quality care.

Another consideration is physicians’ concerns of malpractice claims. Such fears could be manifested in doctors’ ordering more procedures and tests to produce documentary evidence that they left no stone unturned in providing diagnosis and treatment, a practice known as “defensive medicine.” The evidence supporting this hypothesis is mixed [25, 26]. Nevertheless, if physicians perceived that they were less likely to be sued by uninsured persons, it could encourage less imaging for the uninsured compared with the insured patient. The NHDS data lack evidence to support or contradict this hypothesis.

It seems plausible that the finding that inpatients in both government and nonprofit hospitals received more imaging procedures but fewer RVUs compared with those in private hospitals may be due to the larger amount of outpatient imaging performed for those with good insurance but not accessible to those without it.

To the extent that service deficits for some uninsured patients exist, it may not be that they receive too few services but that insured patients get too many [27, 28]. This is a possibility given that insured persons typically pay only a fraction of the bill and are therefore more likely to overutilize health care.

More than 90% of the uninsured were self-payers. The definition of uninsurance here differs from that used in household surveys such as the Current Population Survey and the National Health Interview Survey, which is the source of most statistics on persons lacking insurance. Roughly 8% of hospital discharges were associated with uninsured patients, whereas 18% of nonelderly individuals lacked insurance, according to the Current Population Survey. Some of the difference is definitional, but it also may reflect that the uninsured are hospitalized with less frequency than insured persons.

Some persons are uninsured by personal choice, such as those who are younger, healthier, or between jobs and lacking employment-based benefits. Inpatients aged 18 to 24 years had the highest rate of uninsurance (15.8%) relative to those aged 55 to 64 years (5.8%) in the NHDS. They may perceive insurance as an unattractive benefit/cost option. Some of them have ready access to insurance and could afford it but nevertheless decline coverage [29]. Lack of insurance is not much of an impediment to inpatient care for such individuals.

Limitations

There were several limitations to this study. Little is known about what “self-pay” really means and how hospitals decide whether to classify a patient as self-pay or no charge. Some self-payers undoubtedly lack insurance coverage but nevertheless have the financial means to pay out of pocket. Other uninsured inpatients may be medically indigent, and hospitals use some unknown process for deciding whether to send them a bill for at least partial payment or to classify them as charity and not charge them at all. Furthermore, it is not known in the NHDS whether the hospital makes this determination upon admission or, alternatively, if the patient record on source of payment is amended at a later time to reflect the reality of nonpaying patients.

The data set used has insufficient observations to separate uninsured into self-pay and no-charge subgroups; it may well be that the findings could differ for these two subgroups. The study was confined to hospital inpatients, and it remains to be seen how results might differ for other settings. The incompleteness of the procedure code crosswalk prevents making comparisons on the basis of all inpatient procedures. The NHDS measures are limited to control for diagnosis, socioeconomic status, and health status.

Policy Implications

The Patient Protection and Affordable Care Act (“Obamacare”) was passed in March 2010 [30]. Many provisions are not well understood yet and do not go into effect for several years. Preliminary estimates of the impact on the number of uninsured are widely divergent and therefore unreliable [31, 32]. Before the passage of this legislation, it was estimated that covering the uninsured would entail $34 billion to $69 billion (in 2001 dollars) in additional annual medical care spending, would increase total health care spending by 3% to 6%, but would increase the proportion of gross domestic product devoted to health care by less than 1 percentage point [[33]].

Conclusions

The number of imaging procedures is similar for insured and uninsured inpatients, as is the procedure intensity as measured by global RVUs. Because insurance status does not seem to significantly influence the quantity or value of imaging services received by hospital inpatients, efforts to assist uninsured patients with imaging needs
would be better directed elsewhere than the hospital inpatient setting.

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