Emergency Department Imaging: Uncompensated Services Rendered by Radiologists Nationwide

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Purpose: The aim of this study was to examine characteristics of uncompensated services rendered by radiologists to emergency department (ED) patients.

Methods: Using deidentified billing claims for 2,935 radiologists from 40 states from 2009 through 2012, 18,475,491 services rendered to ED patients were identified. Analysis focused on the 133 of 830 procedure codes that comprised 99.0% (18,296,734) of all rendered services. The frequency, magnitude, and other characteristics of uncompensated (defined as zero payment) radiologist services were analyzed. National 2012 Medicare Physician Fee Schedule amounts were used to estimate service dollar values.

Results: Of 2,935 radiologists, 2,835 (96.6%) provided uncompensated care to ED patients, averaging $2,584 in professional services per physician per service month. Radiologists received no compensation at all for 28.4% of services (5,194,732 of 18,296,734). Just 8 procedure codes describing various chest, foot, and ankle radiographic and brain, abdominal and pelvic, and cervical spine CT examinations accounted for 51.0% of all imaging services rendered to ED patients. CT represented 31.2% of all services but accounted for 64.8% of uncompensated dollars. Although the uninsured received only 15.8% of all services, they accounted for 52.3% of all uncompensated services (2,714,506).

Conclusion: More than 28% of services rendered by radiologists to ED patients are uncompensated, corresponding to $2,584 per month per physician. That frequency and magnitude could have patient access implications.

Key Words: Emergency radiology, patient access, uncompensated care, health care insurance

J Am Coll Radiol 2014;11:559-565. Copyright © 2014 American College of Radiology

INTRODUCTION

Although intended as the primary site for emergent and urgent medical services, emergency departments (EDs) also serve as a safety net for the health care delivery system as a whole, frequently providing nonemergent primary and specialty care to uninsured and other access-limited patients [1,2]. Given the disproportionate costs involved in rendering care in the ED setting, policymakers have strived to match patient acuity with appropriate service sites by expanding access to primary care through delivery system reform and insurance coverage expansion [3]. Health care reform efforts in Massachusetts (which has been touted as a model for the Patient Protection and Affordable Care Act of 2010), however, have been associated with an ongoing increase, rather than an anticipated decrease, in ED visits in that state [4].

In the not remote past, medical imaging underwent a period of explosive growth [5]. Utilization, however, began to stabilize in 2006 and, by many recent accounts, is now in decline [6-9]. A notable exception to that trend, however, is in the ED setting, in which the use of imaging services, particularly CT, continues to rise [10-12].

At least in part related to its access safety net role, a large portion of clinical services provided in the ED setting are uncompensated and have been reported to be as high as 79.4% [13,14]. To our knowledge, the frequency and magnitude of uncompensated imaging services in the ED have not been so studied. Given the continued rise in ED services overall and the disproportionate growth of imaging in the ED compared with

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1546-1440/14/$36.00 • http://dx.doi.org/10.1016/j.jacr.2013.11.006

other sites of service, the workflow and potential financial impact on hospitals and hospital-based radiology practices could be substantial. We sought therefore to study the frequency, magnitude, and other characteristics of services provided by radiologists in the ED setting, focusing on those that are uncompensated.

METHODS

Data Source

Our institutional review board provided exempt status for this retrospective study of patient-identifier and physician-identifier redacted administrative claims data obtained from a large national physician practice billing company (Zotec Partners, Carmel, Indiana).

The database studied was composed of billing claims for 18,475,491 services rendered to patients in the ED setting by 2,935 radiologists in 40 states over 48 months (January 1, 2009, through December 31, 2012).

Data were restricted to those from billing company clients that granted permission for deidentified claims to be used for business analytic and compliance benchmarking and scholarly investigation and were used in accordance with established data use agreements. These restricted our access only to claims for services rendered to patients in the ED setting. Patients and radiologists were all assigned unique alphanumeric identifiers in analytic files. The encryption key was not available to investigators. To address antitrust fee-sharing concerns and concerns about disclosure of proprietary client business information by participating radiology practices, all negotiated fee schedule information and revenue management details (eg, rationale for insurance claim denial, appeal success rates) were prestripped from the analytic file.

Service and Code Identification and Definitions

To target physician professional services that could be assigned reproducible monetary values, only Category I Current Procedural Terminology (CPT) codes and level II Healthcare Common Procedure Coding System "G codes" (those specifically designated by CMS for "temporary procedures and professional services") were included in this analysis. To that end, we specifically excluded Category II CPT codes (which serve as the basis for Physician Quality Reporting System bonus payments by CMS but have no stand-alone inherent monetary value) and Category III CPT emerging and investigational procedural services codes (which have not been nationally valued through the Resource-Based Relative Value Scale process).

To facilitate a practical and meaningful analysis, we excluded claims for extremely uncommon nonrepresentative outlier (often single-site) services described by 697 various procedure codes that together constituted only 1.0% (178,757) of all services (averaging 0.0018 claims per service type per radiologist per month). Accordingly, we focused on the 133 of all identified 830 Category I CPT and Healthcare Common Procedure Coding System codes that constituted 99.0% (18,296,734) of all rendered services.

Given data use agreement restrictions on actual fee schedule information, which precluded us from identifying variations in actual payments for various services, we approached service compensation in a binary manner. Services for which no payment at all was received were defined as "uncompensated services," and those for which any payment at all was received were deemed "compensated services." For example, a chest radiographic study on a Medicaid patient paid at 30% of the Medicare Physician Fee Schedule (MPFS) was considered equally as a compensated services as one on a privately insured patient paid at 200% of the MPFS.

Analysis and Calculations

The frequency by specific procedure code and the imaging modality distribution of all ED imaging services were initially analyzed. As the radiologist composition of the data pool changed over time at both the practice level (eg, changes in billing company—client relationships) and physician level (eg, new hires, retirements), services were studied on a time-weighted, per physician, per month basis. The frequency, magnitude, and various characteristics of uncompensated radiologic services were subsequently studied.

National average 2012 MPFS professional fees were used as the basis for uniform dollar valuation for services for all years (referred to as "Medicare professional dollars") as to minimize: (1) regional geographic practice cost index variation, (2) year-to-year Medicare conversion factor variation, and (3) occasional service relative value unit reweighting through the Resource-Based Relative Value Scale update process. Composite MPFS values were calculated using 2012 total facility relative value units and the 2012 Medicare conversion factor. For those services for which CPT or Healthcare Common Procedure Coding System codes were deleted or changed before 2012, the last available year (2009—2011) CMS relative value unit assignments were used instead. Without access to hospital claims records, we focused exclusively on physician professional service values (ie, attempts were not made to estimate the financial impact to hospitals using physician-only claims data).

To examine time trends and other factors potentially influencing uncompensated care, we performed a series of multivariate logistic regressions. The regressions were adjusted for both state and physician fixed effects to control for both potential geographic variation and other idiosyncratic effects, such as underlying patient socioeconomic demographics. In the first regression, we estimated the odds ratio of an ED claim being paid with the following variables of interest: (1) the insurance status of the patient (ie, insured vs uninsured), (2) year of service (2009—2012), and (3) the specific imaging