Observation Status Related to U.S. Hospital Records

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EXECUTIVE SUMMARY

Observation status is an administrative classification of patients seen in hospital emergency rooms or outpatient clinics who have unstable or uncertain conditions potentially serious enough to warrant close observation, but usually not so serious to warrant admission to the hospital. These patients may be placed in beds usually for less than 24 hours without formal admission to the hospital. The designation of "observation status" patients by hospitals is not well understood and has the potential to distort traditional measures of inpatient hospital utilization.

Further, because the Healthcare Cost and Utilization Project (HCUP) is expanding to include emergency department (ED) and ambulatory surgery (AS) data, it is important to understand how observation cases are handled in those data sets, so that analysts can conduct appropriate comparisons. Also, for States planning to collect ED or AS data, finding a model approach for how to handle observation status might lead to more uniformity among the States in how they collect and process observation cases.

For these reasons, we explore here the use of observation status in HCUP State databases. The project investigated:

- Presence of observation status codes in HCUP-assembled inpatient, emergency department, and ambulatory surgery data;
- Reimbursement incentives under Medicare and under State Medicaid programs for States in HCUP with some "observation status" coding; and
- Variation in use of observation status within and across States based on HCUP inpatient and outpatient data.

Findings from this work heightened our concern about the importance of observation status in affecting various trends in hospital utilization. Variation in the coding of observation status across States and hospitals in HCUP also limited our ability to understand the use of observation services nationally.

Out of 29 States in HCUP in 1998-2000, 16 had "observation" codes in some payment-related categories. Remaining States did not collect, provide revenue code detail to HCUP, or did not use such codes.

We consulted with 18 payment experts and analysts. All expected observation status concepts to be used inconsistently across institutions (see "personal communication" in the reference list). A few State payment experts wanted observation status revoked as a billable service because it was so problematic. Health policy analysts were concerned about the impact of observation status and other invisible outpatient trends in affecting longstanding utilization measures, such as inpatient length of stay. An important gap in our search was insights from clinicians, who may have a very strong stake in the continued use of observation status as a payment category for managing patients with unstable clinical conditions (see Graff, 1993). The Commonwealth of Massachusetts has done the most comprehensive study of observation services; they collect a

separate data set on observation status patients from hospital emergency and outpatient departments in Massachusetts. There are no national studies on the issue.

In the HCUP inpatient and outpatient databases, we found that the percent of records with observation services varied considerably across States. In five States inpatient databases with observation status codes, the percent of the States' inpatient discharges with observation services ranged from 0.5 to 6.2 percent per year. In four HCUP State outpatient databases, the percent of the States' outpatient records with observation services ranged from 0.4 to 8.0 percent per year. There was little variation in the coding of observation services across discharge quarter in both the inpatient and outpatient databases, but there was great variation among hospitals. Hospitals coded observation services on 0% to 40% of their inpatient records, 0% to 70% of their ambulatory surgery records, and 0% to 30% on their emergency department records. In a number of States, many hospitals coded no observation services on their inpatient and/or outpatient records.

We further explored the HCUP data for internal consistency on observation status and for whether hospitals typically count pre-admission observation days as part of the inpatient length of stay. For inpatient discharges without any observation services coded, we expected to find the length of stay equal to room and board days. We found that 1 to 10 percent of those discharges, depending on the State, did not have congruence between length of stay and room and board days. For inpatient discharges *without* any observation services, when the length of stay was not equal to room and board days, length of stay was usually just as likely to be "greater than" as opposed to "less than" R&B days. For inpatient discharges *with* observation services, length of stay was more likely to be greater than the room and board days, suggesting that observation services are at least sometimes included in the inpatient length of stay calculation by the hospital. However, when days in observation status were added to room and board days, the length of stay was still more likely to be greater than the sum. This suggests that either other services are being counted in length of stay or the days for room and board and/or observation services are not accurately captured on the discharge record in the revenue codes and units.

We also examined the length of stay on outpatient records. We found that not all emergency department and ambulatory surgery visits of more than 24 hours have observation time associated with them. This suggests that not all of the time in observation status is coded on the outpatient record in the revenue codes or there is another categorical definition that applies to these cases.

Because of these internal inconsistencies, we do not recommend further analysis of observation services with HCUP inpatient and outpatient databases. It is not possible to determine whether the variation in percent of inpatient and outpatient discharges with observation services is because of practice differences in the use of observation services or because observation services are not recorded consistently in the revenue codes. Further, we caution analysts that inconsistent use and coding of observation services may affect findings in studies of inpatient utilization for some conditions.

OBSERVATION STATUS: GENESIS AND IMPORTANCE OF THE ISSUE

Observation status is an administrative classification of patients seen in hospital emergency rooms or outpatient clinics who have unstable or uncertain conditions potentially serious enough to warrant close observation, but usually not so serious to warrant admission to the hospital. These patients may be placed in beds usually for less than 24 hours without formal admission to the hospital. The designation of "observation status" patients by hospitals is not well understood and has the potential to distort traditional measures of inpatient hospital utilization.

Because the Healthcare Cost and Utilization Project (HCUP) is expanding to include emergency department (ED) and ambulatory surgery (AS) data, it is important to understand how observation stays are handled in those data sets, so that analysts can conduct appropriate comparisons or make adjustments for missing information. Furthermore, with additional States planning to collect ED or AS data, understanding the trend and finding a model approach for how to handle observation stays might lead to more uniformity among the States in how they collect and process observation cases.

In the late 1990s, several State partners of HCUP raised the phenomenon of "observation stays" – patients who occupy a hospital bed without being admitted as an inpatient. The question was: How are those encounters counted, or should they be counted, in analyses of hospital inpatient, ambulatory surgery, and emergency department utilization? Furthermore, preliminary analyses of HCUP ED and AS data showed that "stays" of 2 or 3 days occurred in these outpatient data sets, implying that patients were kept overnight for monitoring before diagnosis or after treatment.

At this point, HCUP analysts hypothesized that the label of "observation" may have been stimulated by trends in managed care, that prospective payment policies nation-wide discouraged inpatient stays for monitoring and recovery of patients, that medical advances moved many invasive procedures to outpatient service settings, and that payment policies may have encouraged the use of observation status for patients that otherwise might have been admitted as inpatients.

Understanding observation status is critical for several reasons:

- National trends in hospital utilization measures (e.g., counts of hospital inpatient admissions, average length of stay, etc.) will be affected by the shift of the locus of care among settings.

- Comparisons of institutions that record observation status differently, such as in inpatient versus outpatient data systems, may be affected.

- Popular press accounts of crowded emergency rooms and delays in treatment may partially result from using examining rooms in emergency departments for observation.

- Inpatient length-of-stay trends have dropped precipitously in the last two decades and seem to continue unabated. Use of observation status could affect this trend in either direction, depending on how observation patients who are not admitted are counted over time.

Utilization trends that are used to evaluate health policies, such as inpatient measures that track Healthy People 2010 goals, can be affected by trends in record keeping on observation status. For example, increased use of observation services for asthma patients will "reduce hospitalizations for asthma," a public health goal (see USDHHS, 2000, goal 24-2), yet there may or may not be improvement in outcomes for asthma patients (Pokras, 2001). One prospective randomized controlled trial showed improvement with a specific treatment protocol – compared to inpatient admission, asthma patients assigned to an emergency department observation unit had better quality of life outcomes (Rydman et al., 1998).

For the reasons above, we explore here the use of observation status in HCUP State databases. The project investigated:

- Presence of observation status codes in HCUP-assembled inpatient, emergency department, and ambulatory surgery data;
- Reimbursement incentives under Medicare and under State Medicaid programs for States in HCUP with some "observation status" coding; and
- Variation in use of observation status within and across States primarily based on 1999 HCUP data.

APPROACH

States and Confidentiality

We explored observation status for 18 of the States in HCUP that reported revenue detail (where observation status is discernible): AZ, CO, CT, FL, GA, IA, MA, MD, ME, MO, NY, OR, PA, SC, TN, UT, WA, WI. Fifteen of them had some type of observation codes in their 1998-1999 HCUP databases: State Inpatient Databases (SID), State Ambulatory Surgery Databases (SASD), and State Emergency Department Databases (SEDD). One additional State had such codes in their 2000 HCUP databases.

States are partners in HCUP and are the original collectors of data from institutions in their State. Because this is an exploratory study, the identity of the States has been masked in the results of this analysis. Our findings do not appear to be State dependent, and hence the identity of any given State in these analyses is not critical to our interpretation. However, if requested by the HCUP representative in the State, AHRQ will provide each State with the key to its own identity in this report.

Framework for Understanding Observation Status

The American College of Emergency Physicians (ACEP, 1995) describes three types of observation services in their guidelines for management of observation units:

(1) “ED observation/treatment units – designated areas within and under the direction of the ED for patients who require further treatment or evaluation.”

(2) “Holding units, or designated areas in the outpatient setting that may or may not be under the control of the ED in which a patient is held pending prearranged actions such as admission or transfer.”

(3) “Observation status beds in the inpatient area of the hospital in which a patient may be evaluated or treated for up to 24 hours before a decision about disposition is needed.”

However, these definitions are not adhered to throughout the hospital industry and “observation services” or “observation care” may be defined differently in different institutions or regions of the country. For example, the accounting manual of the California Office of Statewide Health Planning and Development (OSHPD, 1995 and 1998) defines “definitive observation” under inpatient services as: “Delivery of nursing care to patients less acutely ill than those requiring intensive care, but more acutely ill than those requiring general medical/surgical care.” The services listed as delivered in “definitive observation” are clearly inpatient services (OSHPD, 1995). This definition departs from those of other sources of information that we found on observation status or services. This departure should serve to warn analysts that definitions of “observation” care should be considered carefully in secondary data sources. They can vary considerably from State to State.

To be clear for purposes of this study, we define hospital observation services as services provided in any part of the hospital outside of inpatient admission to the hospital. The observation units/services may be provided physically within an inpatient setting, but provided organizationally or functionally without formal inpatient admission. However, after “observation,” a patient may still proceed to formal inpatient admission.

The above definition conforms to the medical textbook on *Observation Medicine*:

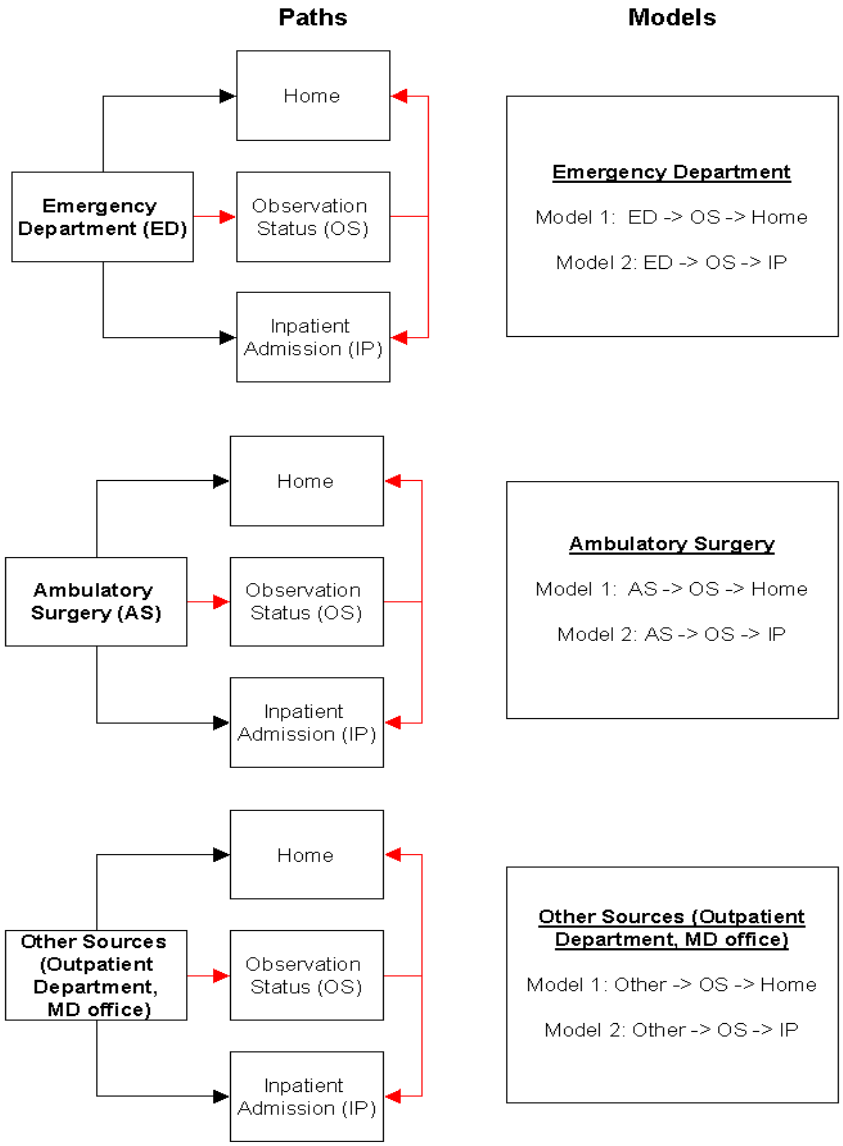
> “Observation medicine straddles the line between inpatient and outpatient services, but because the observation patient is not admitted, observation medicine is most accurately called an outpatient specialty.” (Graff, 1993)

To think about record keeping (or payment policies) on observation status in the States that have emergency department, ambulatory surgery, and other outpatient settings and databases, we diagrammed the paths by which a patient can obtain observation services in Figure 1. This helps us analyze probable gaps in HCUP data related to observation services and the various aspects of payment that touch on observation services.

Figure 1 shows that conceptually there are three originating sources for a route to observation status; three possible dispositions from the originating source; and then two routes out of observation status. The precipitating circumstance can be a visit to an emergency room, surgery in an ambulatory surgery facility, or an outpatient visit either to a hospital outpatient department or a physician’s office. From each of these settings,

a patient can return home, be sent to observation status, or be sent directly to inpatient admission. After observation, a patient can be "discharged" to home or admitted as an inpatient. We did not include the disposition of "patient expired" because this represents a very small percentage (only 1 percent) of the patients (Freedman, 1999).

Figure 1. Paths to and from Observation Status and Models for Classifying Observation Paths



Regarding payment, four policies – non-surgical outpatient, ambulatory surgery, emergency, and inpatient payment policies – affect the financial incentives. Payment issues such as the basis of payment (fee schedules, prospective payment, or other arrangements) and the limits on payment (e.g., hours in observation status) affect fiscal

incentives. Although we know any of these payment details can vary by payer, we were unsuccessful in obtaining definitive payment information at those levels of detail across the States or payers.

Limitations and Caveats

Several factors limited our search for information on observation services. Much of the general information on observation services was based on individual conversations. Individuals can be expected to have varying levels of expertise, recall, and understanding about the issues and policies of observation services. In the time allocated for this activity, we were not able to locate anyone with extensive knowledge of payment policies across private health plans. The empirical information that we obtained from the literature was through the Massachusetts Division of Health Care Finance and Policy (Fuda, 2001) and from a Web-based search of bibliographic databases. The definitive work by Graff (1993) recounts research primarily on single institutions and not on nationally representative data. Thus, those empirical findings cannot be generalized. Thus, this search should not be considered definitive for understanding observation services in the U.S. and its trend over the last two decades.

FINDINGS FROM SEARCH FOR GENERAL INFORMATION

"Observation Status or Services," not "Observation Stay," What Is It?

The first lesson from many of those who deal with the issue is that observation stay is a misnomer. Observation status or observation services are the more appropriate terms, because technically it is an outpatient service, not an inpatient service or stay. Observation status is a limbo-type concept that refers to the status of a patient somewhere between ambulatory care and inpatient care.

Why Is Observation Status Used?

The ability to place patients in observation status provides time and flexibility for clinicians to observe the patient for determining a diagnosis without the process and cost of admission. Another reason for the use of observation status is payment incentives. A number of different payers have different observation-services policies, complicating incentives facing institutions. Furthermore, payment policies have changed significantly over the last decade as claims for observation status surged. We have obtained some information on observation-status payment policies, but many gaps remain.

Payment Policies

Considerable attention has focused on observation status recently as payers (primarily Medicare) have changed their lucrative payments for observation status. Observation status has been a valid outpatient payment category under Medicare at least since 1983, when prospective payment started for inpatient services. Observation care under Medicare has been a boon to hospitals that used it aggressively because reimbursement was provided outside of DRG payments (Farley, 2001). Starting

August 1, 2000, Medicare outpatient prospective payment eliminated observation care as a separate reimbursement category. A "72-hour rule" effectively bundled everything within that period together for payment under Ambulatory Payment Classifications (APCs). A firestorm response to this policy erupted for several reasons. Observation service codes and billing was commonly used by many hospitals for outpatient services, and hospitals did not want to absorb the cost of observing the patient to determine a diagnosis. Hospitals claimed observation status to be necessary to determine a diagnosis and argued that observation is clinically reasonable and necessary in certain instances. The 72-hour rule was reversed in more recent Medicare regulations to allow payment for outpatient observation care unrelated to surgery.

Medicaid pays for observation status, and the policies likely vary by State. The uniform Medicaid data assembled by the Centers for Medicare and Medicaid Services includes revenue codes and units but those data have not been analyzed for observation services (Buchanan, 2001). We talked to Medicaid payment experts in two States, Massachusetts and South Carolina. They indicated that Medicaid in both States pays for observation status as an outpatient service (Alexander, 2001; Thompson, 2001).

How private payers reimburse for observation status is less clear because we were unsuccessful in finding people who were confident about how private payment for observation services works. One source in Massachusetts shows that private payers in 1998 had substantial observation utilization rates (DHCFP, 1999). One source surmised that private payers probably cover observation services by bundling services into a broader outpatient payment episode. However, another source indicated that in the last year in South Carolina, Blue Cross stopped paying for observation status associated with an ED visit (Solomon, 2001).

How Often Is Observation Status Used Based on the Literature?

Two publications show the frequency of observation services. Graff summarized findings from many studies, primarily of single institutions, related to observation status prior to 1993. Those studies suggested that:

- Five percent or less of emergency department patients were in observation status in the 1970s and early 1980s.
- As many as 8 to 25 percent of all admissions were in observation status prior to admission in this time period.
- The vast majority of patients in observation status, 75 to 80 percent, went home without an inpatient admission prior to the early 1980s.

The Massachusetts Division of Health Care Finance and Policy (DHCFP) tabulated statistics for the year 1998 for observation status collected specially from Massachusetts' hospital outpatient facilities and compared them to the number of Massachusetts' hospitals inpatient discharges, by dividing outpatient observation cases by total inpatient cases (Freedman, 1999). Total outpatient observation cases were on the scale of 19 percent of inpatient admissions in fiscal year 1998, with a mean length of 21 hours; almost none (one percent) of these outpatient observation cases were

admitted. This low admission rate is an artifact of the data, because DHCFP asked hospitals to omit observation cases that were subsequently admitted to the hospital from the outpatient observation database (Fuda, 2002). The section below on HCUP data exploration based on a few States suggests that rates of observation outpatients admitted to inpatient settings may have been substantially higher than one percent by the late 1990s and that datasets from multiple settings would be necessary to estimate the number accurately.

What Is the Route to and from Observation Status?

The Massachusetts analysis is the only one we found that shows proportions of observation status patients by how they arrived in observation status and by their departure status (Table 1). The classifications are not consistent with the framework for this analysis (provided in Figure 1), but they provide some insight into pathways of observation services. It appears that most patients arrive via referral by a physician (35 percent) or other hospital (33 percent), rather than the by hospitals' own emergency department (11 percent) or clinics (7 percent). Also, although only 1 percent of observation cases appear in Table 1 to be admitted to the hospital, this is misleading because hospitals were instructed to omit observation cases subsequently admitted as inpatients from the special observation data submission to the State.

METHODS FOR HCUP DATA EXPLORATION

Using the HCUP data, we studied whether the coding of observation services was consistent across hospitals and within hospital across discharge quarter. We also analyzed the length of stay compared to time in observation status.

Observation Service Codes

There were three possible ways to identify observation services in the revenue code detail of the HCUP databases:

- Uniform Billing (UB-92) code. The code for observation services falls under a category called "760 Treatment or Observation Room" (AHA, 1999). The more specific code 762 relates only to observation services. Code 760 should not be used to identify observation services because it also includes charges for rooms when treatments were administered.

- Common Procedural Terminology (CPT-4) codes. Observation services fall under outpatient and inpatient service categories. One range of codes relates only to outpatient services (99217-99220), another only to inpatient services (99234-99236) (AMA, 2000).
- Aggregated charges. Some States create "charge buckets" that aggregate charges across UB-92 codes. The charge-bucket definitions differ by State. Some are not usable because they include "treatment and observation room" in one bucket; others separately identify "observation room" charges.

We examined all of the above codes related to observation services to determine which States had institutions that distinguished observation service.

Sixteen States have some type of observation code available in the 1999 -2000 HCUP databases, State Inpatient Databases (SID), State Ambulatory Databases (SASD), and State Emergency Department Databases (SEDD). Table 2 shows the number and percent of observation status records by State and type of observation code. UB-92 revenue codes are the best candidates for analysis of observation status. Because State-specific charge buckets often combine "observation room" with "treatment room," they are a poor indicator of observation status. CPT procedure codes are virtually never coded in the data, or States with both CPT procedures and revenue codes generally code observation service under revenue codes and not under CPT procedure codes.

UB-92 revenue codes were available in nine State databases – five State Inpatient Databases (SID), two State Ambulatory Surgery Databases (SASD), and two State Emergency Department Databases (SEDD). We identified observation services by revenue code 762 and calculated time in observation status by summing the units (hours) for these services and converting them to days.

Other Measures

To determine days billed for room and board (R&B days), we used the UB-92 accommodation revenue codes in the range 10x – 21x, which include room and board, nursery, sub-acute care, intensive care, and coronary care. The number of days billed for room and board was determined by summing the units (days) coded for those accommodation-revenue codes, excluding the revenue codes for 18x "Leave Days".

Length of Stay (LOS) on the HCUP databases was calculated as the number of days from admission date to discharge date. Same day stays with a LOS of 0 days were incremented by 1 day because same day stays would be billed as 1 day for room and board. The resulting adjusted LOS (ADJLOS) was used in the inpatient analyses.

FINDINGS FROM HCUP DATA EXPLORATION

In term of frequency, the percent of records with observation services varied considerably across States, hospitals, and setting of care. In terms of consistency, reporting of observation time was difficult to evaluate because the underlying data were inconsistent.

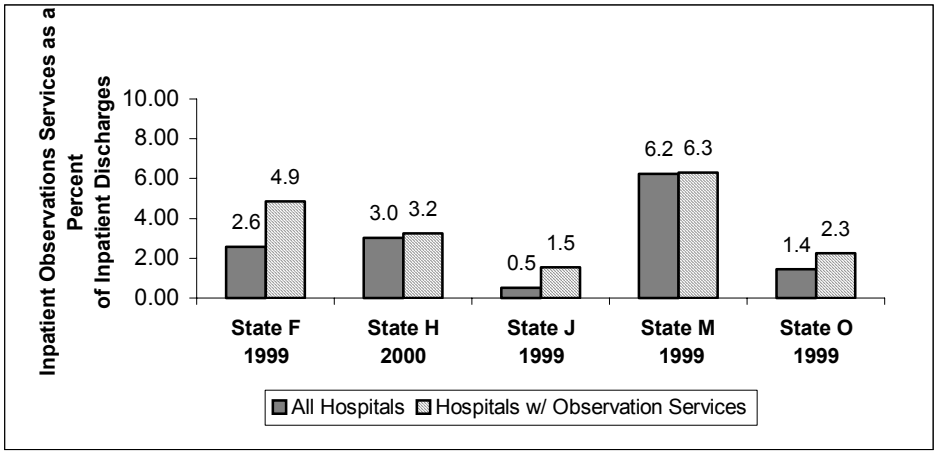
Frequency of Observation Services in HCUP Inpatient Data

For each of the five State Inpatient Databases, observation services as a percent of inpatient discharges was calculated (see Figure 2). The percent of the States' inpatient discharges with observation services ranged from 0.5 to 6.2 percent per year based on "all hospitals" (that is, those with observation services and those without observation services). In 4 of the 5 States, 3 percent or less of the States' inpatient discharges had

observation services. State M had over twice that proportion of observation services on inpatient records.

In some States, a large number of the hospitals provided no observation services. This is apparent from the discrepancy in the proportion of discharges with observation services between all hospitals and hospitals with observation services in Figure 2. For example, in State F where about half of the hospitals had claimed no observation services, the annual percent of 2.6 increases to 4.9 percent when calculated only on hospitals that coded observation services.

Figure 2. Annual Inpatient Observation Services by State



To look at the consistency of coding observation status across time, we examined inpatient observation services as a percent of inpatient discharges by discharge quarter within State and hospital. Figure 3 shows the percent of observation services across quarters in State O. There was little variation in the coding of observation services across discharge quarter in this State. Because this pattern is similar in the other four States, they are not shown here.

Figure 3. Inpatient Observation Services by Quarter, State O, 1999

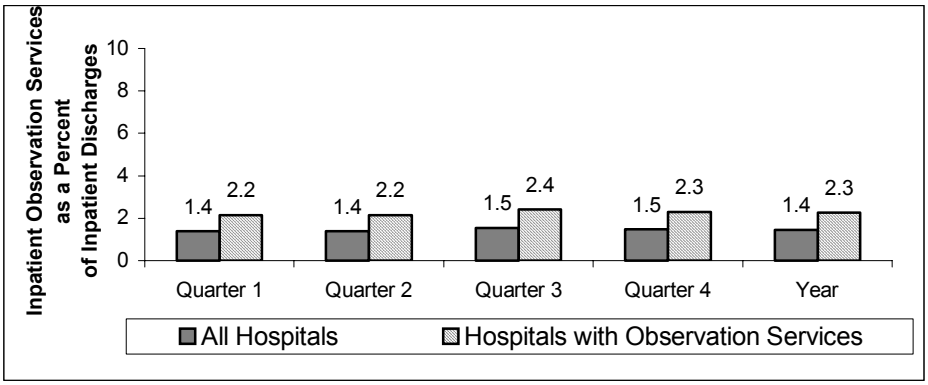
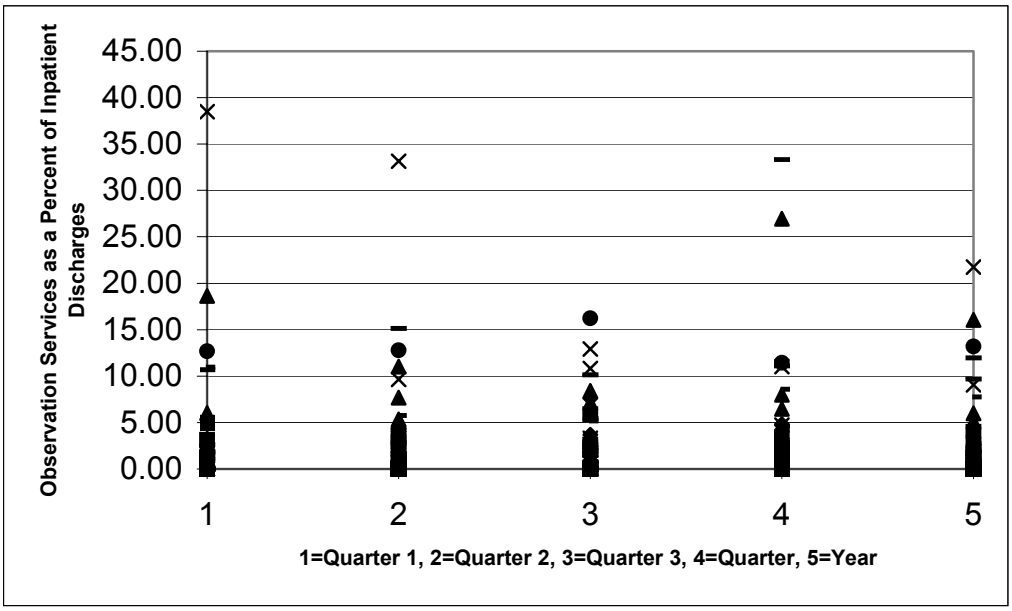


Figure 4 shows the percent of observation services across discharge quarter by hospital in State O. Variation in the use of observation status prior to admission of inpatients was quite large across hospitals in State O. Also, substantial variation across hospitals occurred in the other States studied. The percent ranged from 0 to 80 percent across the different hospitals and States. All five States showed some hospitals with exceptionally high use of observation status among inpatient discharges. In addition, many hospitals did not report any observation services.

Figure 4. Trends in Inpatient Observation Services by Hospital, State O, 1999

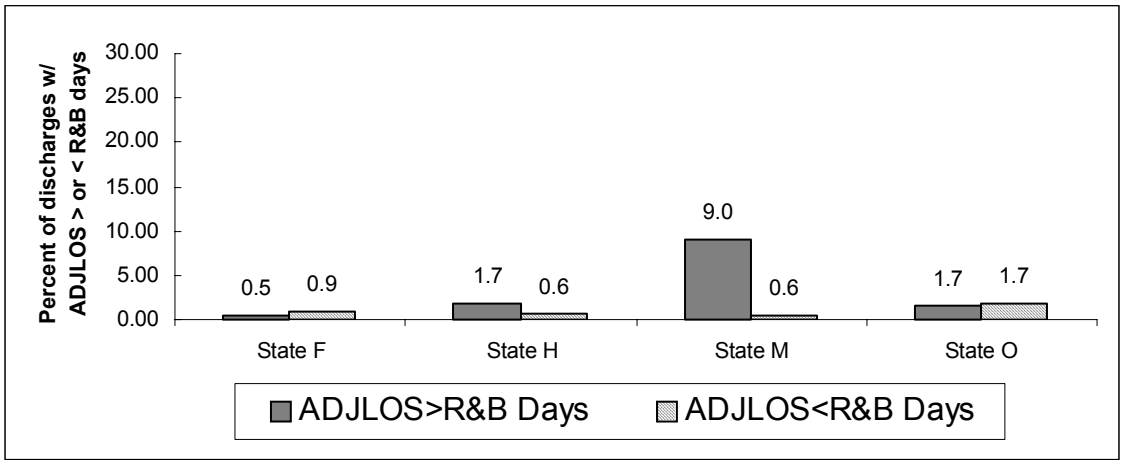


Consistency in Coding of Length of Stay and Room and Board Days in HCUP Inpatient Data

We examined whether the length of stay coded on the discharge record included the number of days billed for room and board plus the time in observation status. We had to drop one of the five SID databases from this analysis because it did not include information on the time in observation status. For discharges without any observation services coded, we expected to find the length of stay (ADJLOS) equal to room and board days (R&B days) for 100 percent of those discharges. We found that 1 to 10 percent of those discharges, depending on the State, did not have congruence between ADJLOS and R&B days (not shown).

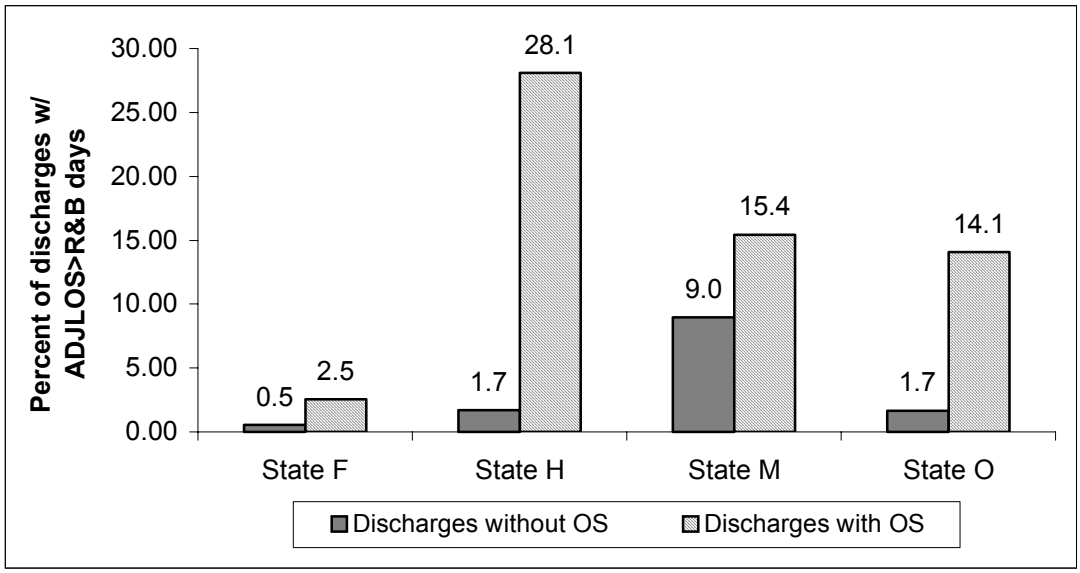
To further understand this phenomenon, we examined whether ADJLOS was greater than or less than R&B days when they were not equal, for discharges without observation services. As Figure 5 shows, when ADJLOS was not equal to R&B days, it usually was just as likely to be "greater than" as opposed to "less than" R&B days, except for one State in which ADJLOS was much more likely to be greater than R&B days. This suggests that typically random error is the reason for the inconsistency across the two measures.

Figure 5. Unexpected Inpatient Result: ADJLOS > or < R&B Days (All Hospitals, Baseline of Discharges without Observation Services)



For the remaining subset of discharges with observation status, we expected R&B Days billed to be equal to ADJLOS or perhaps greater than ADJLOS if observation days were included in the bill. We did not expect ADJLOS to be greater than R&B Days because ADJLOS should have counted only the inpatient stay. Figure 6 shows that inpatient discharges with observation services are more likely to exhibit the unexpected finding of ADJLOS greater than R&B days.[1] This suggests that hospitals may include observation services in the length of stay.

Figure 6. Unexpected Inpatient Result: ADJLOS > R&B Days (All Hospitals, Discharges without and with Observation Services)



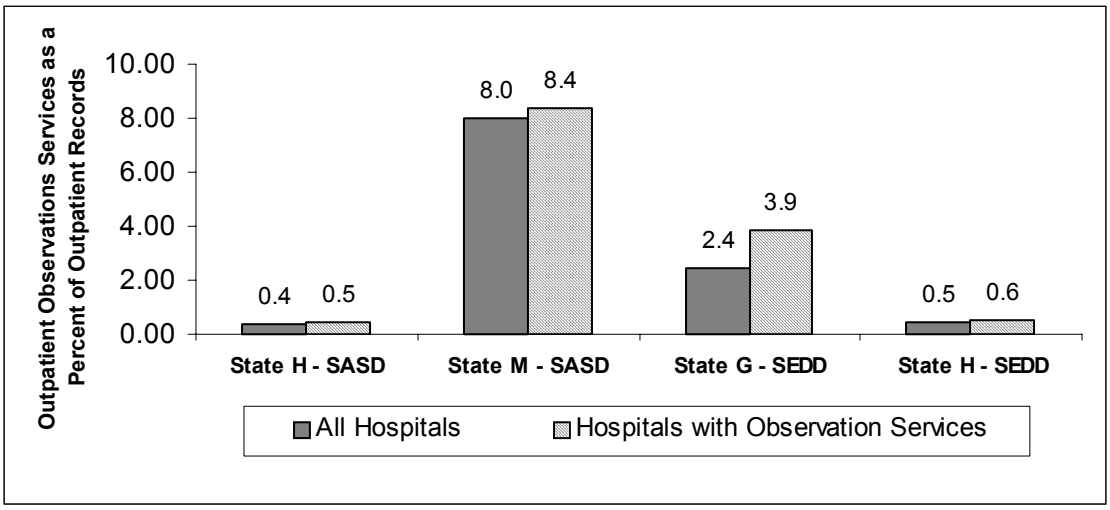
[1] We verified that this result was not caused by the adjustment of zero day lengths of stay.

Another way of inferring where time in observation status is coded is to examine discharges that have and do not have observation services coded and determine how often those records diverge from the expected result that ADJLOS=R&B days. We found that when observation services are provided to patients, their ADJLOS is less likely to equal their R&B days, suggesting again that observation services are counted in ADJLOS. Even when observation service days are added to R&B days, ADJLOS is still greater than the sum in most cases. This suggests that either other services are being counted in length of stay or the days for room and board and/or observation services are not accurately captured on the discharge record in the revenue codes and units.

Frequency of Coding of Observation Services in HCUP Outpatient Data

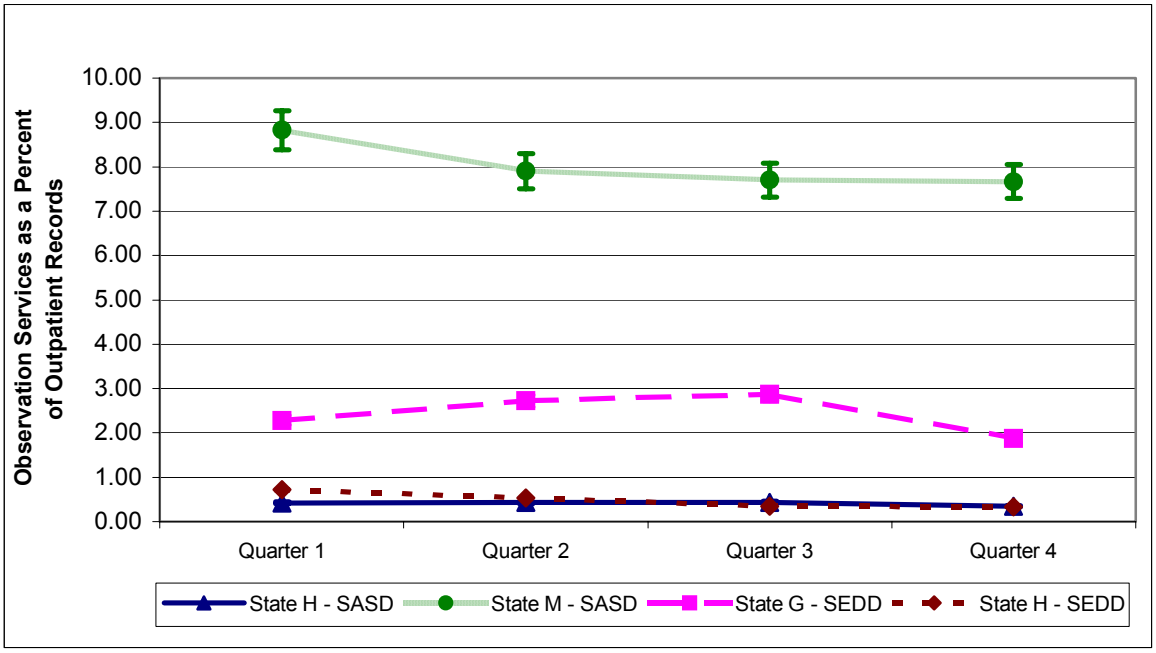
For four outpatient databases, we were able to calculate observation services as a percent of outpatient records. As Figure 7 shows, the four State databases vary considerably in representing outpatient observation services. State M has the highest rate of observation services at 8 percent of ambulatory surgery cases across all hospitals. State G hospital emergency departments place 2.4 percent of their visitors in observation status. State H hospitals provide observation services for only 0.5 percent of their emergency department visits and 0.4 percent of their ambulatory surgery cases.

Figure 7. Annual Outpatient Observation Services by State, 1999



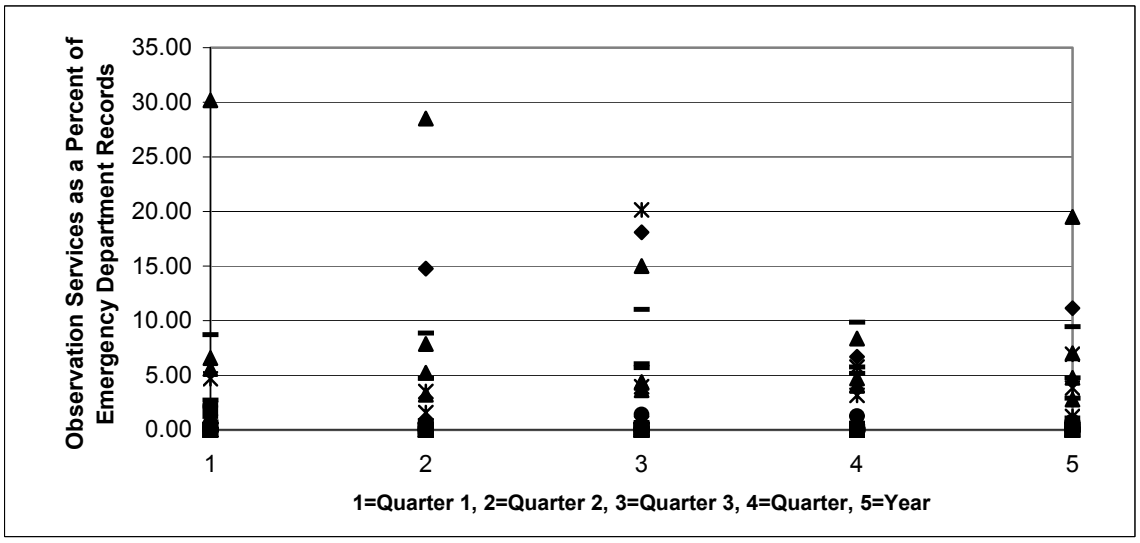
To look at the variation of coding observation status across time, we examined outpatient observation services as a percent of outpatient records by discharge quarter within State. As Figure 8 shows, there is some quarterly variation within the State databases, but no consistent pattern across the four State databases.

Figure 8. All-Hospital Trends in Outpatient Observation Services by State, 1999



Use of observation status for outpatients did vary across hospitals, as it did for inpatients. Figure 9 shows the percent of observation services across quarter by hospital for emergency department visits in State G. All four States showed great variation across hospitals. The percent of outpatient records with observation services ranged from 0 to 80 percent across the different States, with many hospitals reporting no observation services.

Figure 9. Trends in Emergency Department Observation Services by Hospital, State G, 1999

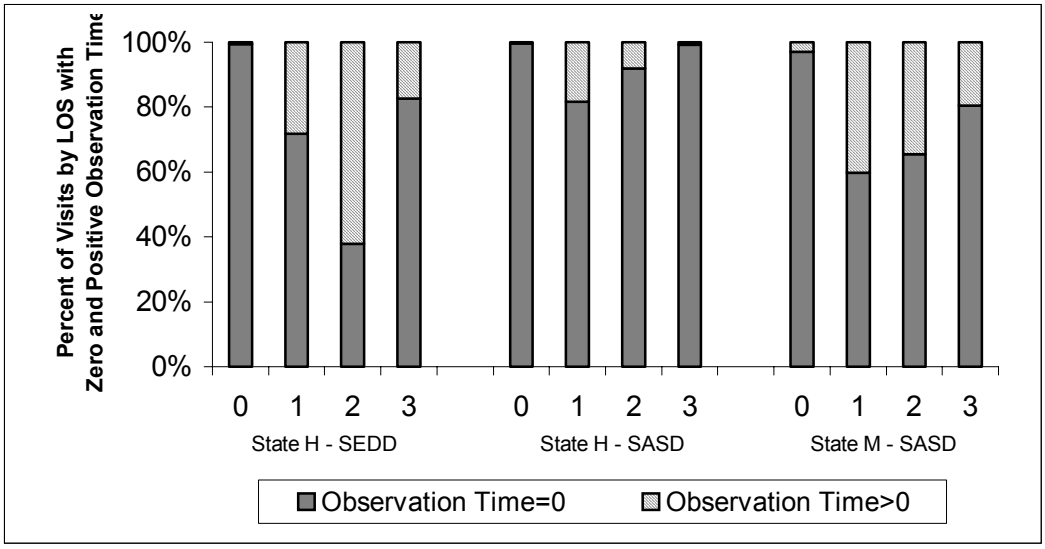


Consistency of Coding Length of Stay in HCUP Outpatient Data

For outpatient data, we examined whether the length of stay (LOS) coded on the record included time in observation status. We used the three HCUP outpatient databases that provided outpatient length of stay. In both the emergency department and ambulatory surgery databases, we expected that records without observation services would have a length of stay of 0. We expected outpatient records with observation services to have a length of stay of zero or greater if time in observation status was included in the length of stay. For 0-3 day stays, we examined the percent of visits with observation services and expected all of the records of 1, 2, or 3 days length to be 100 percent observation service records.

Figure 10 shows the surprising result that not all emergency department and ambulatory surgery visits of more than 24 hours have observation time associated with them. Columns for 1, 2, and 3 days should be hatched in Figure 10. This suggests that either not all time in observation is coded on the outpatient record in the revenue codes or there is another categorical definition that applies to these cases that stay overnight in the emergency department or ambulatory surgery units.

Figure 10. Percent of Visits with Time in Observation by LOS (in days), 1999



Other Observation Stay Databases

Two States collect data on observation services on all outpatient visits, not just ambulatory care and emergency visits – Tennessee and Massachusetts. These databases are not yet part of HCUP. Kathy Fuda at the Division of Health Care Finance and Policy in Massachusetts shared an analysis of their fiscal year 1999 observation stay database. This database does not include observation stays that result in an inpatient admission. Table 3 lists all Massachusetts outpatient observation stay records grouped by major diagnostic group. Not surprisingly, ill-defined clinical conditions were most likely to place a patient in observation status. After that, pregnancy, circulatory,

respiratory, and digestive conditions along with injury and poisonings accounted for the most use of observation status. Table 4 lists the top 25 principal diagnoses coded on the observation stay records. Those at the top of the list are more often non-specific conditions that require time for diagnosis and monitoring before a decision to admit to the hospital or to send the patient home.

CONCLUSION AND RECOMMENDATION

In the HCUP inpatient and outpatient databases, we found that the percent of records with observation services varied considerably across States. In the five SID databases, the percent of the States' inpatient discharges with observation services ranged from 0.5 to 6.2 percent per year. In the four State outpatient databases, the percent of the States' outpatient records with observation services ranged from 0.4 to 8 percent per year. There was little variation in the coding of observation services across discharge quarter in both the inpatient and outpatient databases, but there was great variation across hospitals – from zero to 80 percent of records at some institutions had observation services associated with them.

Furthermore, observation status indicators were not consistent with other data elements in the HCUP data. For example for outpatient data, we compared length of stay to the presence of observation services and found that not all emergency department and ambulatory surgery visits of more than 24 hours had observation time associated with them.

Also, because we suspect incomplete coding of observation services in the revenue codes and units, it is not possible to determine if the variation in the percent of inpatient and outpatient discharges with observation services was because of practice differences or because observation services were not recorded consistently in the revenue codes. As a result, we do not recommend further data analysis on observation services in the HCUP inpatient and outpatient databases.

Also, we do not recommend exploration of observation services using the special data collected by Tennessee and Massachusetts. Massachusetts has already done an in-depth analysis of their special outpatient observation status database. Furthermore, those data do not include observation records that result in inpatient admissions, so that observation patients who are ultimately admitted to the hospital would have to be identified in the HCUP inpatient database, which we know to be inadequate for such analyses.

Finally, the results reported here should not be generalized nationally. Only five state inpatient databases and four outpatient databases could be examined for observation status. Of those examined, variation in use of observation status across hospitals is remarkable and is most likely indicative of differential incentives, strategies, or knowledge across health care institutions about observation status categories for reimbursement. How this would translate into national rates is unknowable from HCUP data given the inconsistencies that we observed and the suspected incompleteness of coding observation services in those data.

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Table 1. Percent of Outpatient Observation Records by Source of Referral and Departure Destination, Commonwealth of Massachusetts, Fiscal Year 1998

Measure	Percent of observation patients
All Sources of Referral to Observation Status	**100**
Physician	35
Other hospital	33
Hospital's own emergency room	11
Hospital's own clinic	7
Self	2
Hospital's ambulatory surgery	2
Health plan directly	2
SNF/ICF	2
Other and unknown	7
All departure destinations	**100**
Routine	91
Transferred	5
Admission to institution[1]	1
Against medical advice	1
Died	1
Unknown	2

Source: Freedman, 1999. Percents do not add due to rounding. Total number of cases was 73,662.
[1]Hospital admissions were excluded from this database.

Table 2. Counts of Observation Status Records in HCUP State Databases, 1999

State	Data Type	Coding Method* to Identify Observation Status (OS)	Number of OS Records	OS Records as Percent of Total in Database
State A	SASD	CPT 99217-99220 (outpatient service)	0	0.00
State A	SASD	CPT 99234-99236 (inpatient service)	0	0.00
State A Total			0	**0.00**
State B	SID	CHG50 (treatment *or* observation room)	26,382	**4.71** ***
State C	SASD	CPT 99217-99220 (outpatient service)	20	0.01
State C	SASD	CPT 99234-99236 (inpatient service)	5	0.00
State C Total			25	**0.01**
State D	SASD	CPT 99217-99220 (outpatient service)	229	0.07
State D	SASD	CPT 99234-99236 (inpatient service)	0	0.00
State D Total			229	**0.07**
State E	SID	CHG29 (observation room)	301	**0.03**
State F	SID	UB 760 (treatment *or* observation room)	49,553	6.37 ***
State F	SID	UB 762 (observation room)	20,113	2.59
State F Total			49,553	**6.37**
State G	SEDD	UB 760 (treatment or observation room)	32,421	2.46 ***
State G	SEDD	UB 762 (observation room)	32,210	2.44
State G	SEDD	CPT 99217-99220 (outpatient service)	6,128	0.46
State G	SEDD	CPT 99234-99236 (inpatient service)	102	0.01
State G	SASD	CPT 99217-99220 (outpatient service)	14	0.00
State G	SASD	CPT 99234-99236 (inpatient service)	0	0.00
State G Total			38,665	**2.31** **
State H 2000	SID	UB 760 (treatment or observation room)	8,030	4.98 ***
State H 2000	SID	UB 762 (observation room)	4,861	3.01
State H	SASD	UB 760 (treatment or observation room)	42,902	2.26 ***
State H	SASD	UB 762 (observation room)	7,770	0.41
State H	SEDD	UB 760 (treatment or observation room)	7,352	1.61 ***
State H	SEDD	UB 762 (observation room)	2,190	0.48
State H Total			58,284	**1.86**
State I	SID	CHG18 (treatment *or* observation room)	35,838	**10.14** ***
State J	SID	UB 760 (treatment *or* observation room)	32,230	1.33 ***
State J	SID	UB 762 (observation room)	12,309	0.51

Table 2. Counts of Observation Status Records in HCUP State Databases, 1999

State	Data Type	Coding Method* to Identify Observation Status (OS)	Number of OS Records	OS Records as Percent of Total in Database
State J	SASD	CPT 99217-99220 (outpatient service)	2,454	0.20
State J	SASD	CPT 99234-99236 (inpatient service)	43	0.00
State J Total			34,727	**0.94**
State K	SASD	CHG10 (treatment *or* observation room)	298,169	12.52 ***
State K	SASD	CPT 99217-99220 (outpatient service)	21,593	0.91
State K	SASD	CPT 99234-99236 (inpatient service)	456	0.02
State K Total			320,218	**13.45** **
State L	SASD	CPT 99217-99220 (outpatient service)	743	0.05
State L	SASD	CPT 99234-99236 (inpatient service)	51	0.00
State L Total			794	**0.05**
State M	SASD	UB 760 (treatment *or* observation room)	103,359	15.50 ***
State M	SID	UB 760 (treatment *or* observation room)	70,872	9.04 ***
State M	SASD	UB 762 (observation room)	53,351	8.00
State M	SID	UB 762 (observation room)	48,902	6.23
State M Total			174,231	**12.01**
State N	SASD	CHG29 (treatment or observation room)	31,175	7.75
State N	SID	CHG29 (treatment or observation room)	15,303	3.07
State N	SEDD	CHG29 (treatment or observation room)	15,437	1.16
State N Total			61,915	**2.78**
State O	SID	UB 760 (treatment *or* observation room)	24,244	4.41 ***
State O	SID	UB 762 (observation room)	7,941	1.44
State O Total			24,244	**4.41**
State P	SASD	CPT 99217-99220 (outpatient service)	0	0.00
State P	SASD	CPT 99234-99236 (inpatient service)	64	0.01
State P	SEDD	CPT 99217-99220 (outpatient service)	5	0.00
State P	SEDD	CPT 99234-99236 (inpatient service)	70	0.00
State P Total			139	**0.01**
Total for 16 HCUP States with Available Codes			**825,545**	**3.72** ** ***

Source: HCUP State Databases, Special Analysis 3, AHRQ Contract No. 290-00-0004 with Medstat.
*UB = uniform billing revenue code for inpatient data; CHG = State-specific charge bucket; CPT = Common Procedural Terminology for physician services.
** Possible double counting because observation services are identified by at least two different coding methods within a State and data type.
*** Possible overestimate because treatment room charges are included.

Table 3. Major Diagnostic Group, Massachusetts Outpatient Observation Stays, Fiscal Year 1999

ICD-9-CM Diagnosis Code	Diagnostic Group	Number of Outpatient Discharges	The Diagnosis Group as a Percent of Outpatient Discharges with Observation Services
780-799	Symptoms, signs, ill-defined	31,401	20.55%
630-677	Pregnancy/birth	18,316	11.98%
390-459	Circulatory system	14,911	9.76%
460-519	Respiratory system	14,682	9.61%
520-579	Digestive system	14,156	9.26%
800-999	Injury/poisoning	13,807	9.03%
580-629	Genitourinary system	7,011	4.59%
240-279	Endocrine/nutrition/metabolism	6,834	4.47%
710-739	Musculoskeletal/connective	6,587	4.31%
290-319	Mental	5,096	3.33%
140-239	Neoplasms	4,780	3.13%
320-389	Nervous system	4,021	2.63%
V01-V82	Supplementary	2,901	1.90%
001-139	Infectious/parasitic	2,449	1.60%
280-289	Blood	2,444	1.60%
680-709	Skin	1,941	1.27%
740-759	Congenital anomalies	920	0.60%
760-779	Perinatal conditions	510	0.33%
Null	Other	72	0.05%
Total		152,839	100.00%

Source: Division of Health Care Finance and Policy in Massachusetts (Fuda, 2002).

Table 4. Top 25 Diagnoses, Massachusetts Outpatient Observation Stays, Fiscal Year 1999

Principal Diagnosis	Description	Number of Outpatient Discharges	Principal Diagnosis as a Percent of Outpatient Discharges with Observation Services
78650	Unspecified chest pain	8,760	5.7%
78659	Other chest pain	6,058	4.0%
2765	Volume depletion disorder	4,266	2.8%
64403	Threatened premature labor, antepartum	3,744	2.4%
64413	Other threatened labor, antepartum	3,631	2.4%
7802	Syncope and collapse	3,258	2.1%
49390	Asthma, unspecified type, without mention of status asthmaticus	2,823	1.8%
41401	Coronary atherosclerosis of native coronary vessel	2,431	1.6%
64893	Other current conditions classifiable elsewhere of mother, antepartum	2,422	1.6%
57410	Calculus of gallbladder with other cholecystitis, without mention of obstruction	2,294	1.5%
486	Pneumonia, organism unspecified	1,954	1.3%
42731	Atrial fibrillation	1,884	1.2%
5589	Other and unspecified noninfectious gastroenteritis and colitis	1,810	1.2%
4280	Congestive heart failure	1,572	1.0%
78039	Other convulsions	1,381	0.9%
2859	Anemia, unspecified	1,245	0.8%
49121	Obstructive chronic bronchitis with acute exacerbation	1,166	0.8%
47410	Hypertrophy of tonsil with adenoids	1,083	0.7%
78903	Abdominal pain, right lower quadrant	1,065	0.7%
5921	Calculus of ureter	1,048	0.7%
78900	Abdominal pain, unspecified site	919	0.6%
64683	Other specified antepartum complications	780	0.5%
5990	Urinary tract infection, site not specified	780	0.5%
4111	Intermediate coronary syndrome	752	0.5%
30500	Alcohol abuse, unspecified drinking behavior	742	0.5%

Source: Division of Health Care Finance and Policy, Massachusetts (Fuda, 2000).