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**Payment for ICU Service;**

# Payment for ICU Services

## TRADITIONAL HOSPITAL REIMBURSEMENT

Derzon (60) emphasized that several features of the American health financing and payment system operate to reinforce use of expensive technology, such as intensive care units (ICUs). These factors include payment certainty, consumer insurability, government assumption of risk, and benefits based on “medical” necessity. These factors have provided the major impetus to expansion of ICUs in the 1960s, 1970s, and early 1980s.

Most patients are covered for all or part of their hospital costs through private or government insurance. With the exception of small indemnity insurance companies, which pay a fixed dollar amount per day or a fixed coinsurance rate based on hospital charges, most private insurance companies pay full hospital charges, sometimes after an initial deductible. Other major payers, including many Blue Cross plans, Medicare, and Medicaid, have traditionally reimbursed hospitals on the basis of the actual cost of providing the service to their beneficiaries.

To the extent that many insurers distinguish ICU care from other hospital care for purposes of reimbursement, the result has been both to reward ICU care and to penalize intermediate level special care units. For example, until 1982, Medicare paid hospitals different per diem rates for only two levels of hospital care—routine care and “special care” (ICU and coronary care unit (CCU) care.) Levels of care below special care were reimbursed at routine care levels. The other cost-based payers have tended to follow Medicare’s definitional guidelines (166). Also, in 1979 and 1980, as was noted in chapter 2, Medicare tightened existing payment limits on routine bed costs but not on ICU bed costs—the so-called “section 223 limits” (73).

Furthermore, two reimbursement mechanisms designed, in part, to curb unnecessary utilization of care (including ICU care) have no impact on

ICU utilization. These mechanisms—patient copayments and utilization review—are discussed below.

### Patient Copayments

Little is known directly about the effect of direct patient payments on the utilization and cost of ICU care. Cullen (56) found that only 100 of 189 seriously ill patients in a Boston surgical ICU were billed directly for any amount. The average bill for patients who did get billed was \$1,856, which was equal to 9 percent of their total hospital bills. Cromwell (49) found that 80 percent of ICU patients in a different Boston teaching hospital had direct bills of less than \$100, and most of the patients, 42 percent of whom had Medicare coverage, were well covered for the costs of ICU care. Only 2.5 percent of the sample had out-of-pocket bills above \$3,000, and they were responsible for 67 percent of all uncovered hospital charges for ICU care. This pattern may differ in other parts of the country where private insurance coverage is not as extensive.

Finally, Cromwell found little correlation between coinsurance rates and the utilization of ICU beds and ancillary services after the completely uninsured patients were discounted. He did find, however, that patients with no insurance coverage had hospital and ICU stays about half as long as those patients with more extensive insurance coverage. Uninsured patients may exhibit a different case mix that explains at least part of the difference in utilization.

### Utilization Review

Theoretically, hospital utilization review (UR) programs have the potential for limiting hospital reimbursement for ICU care by denying payments to patients “inappropriately” in the ICU. In re-

ality, hospital UR programs, administered for the last decade in accordance with the Federal Professional Standards Review Organization program, have focused almost exclusively on whether the admission is appropriate and whether the length of the hospitalization is necessary, rather

than on appropriate level of care within the hospital (234). It would be most unusual for a UR committee or insurance company to deny payments for a patient in the ICU or recommend transfer to a lower cost unit in the hospital.

## PROSPECTIVE PAYMENT PROGRAMS

Evidence is accumulating that State-based hospital prospective payment programs have been somewhat successful in reducing hospital cost inflation (20,45). There is almost no published data, however, on how ICUs have fared relative to other hospital services in States with prospective payment systems.

OTA'S analysis shows that between 1976 and 1981, in the eight States that had established hospital prospective payment (rate-setting) demonstration programs (Connecticut, Maryland, Massachusetts, New Jersey, New York, Rhode Island, Washington, and Wisconsin), increases in ICU/CCU beds were below the national average (4). However, some of these States, including Connecticut and Washington, had relatively high levels of ICU and CCU beds to begin with, so a decreased rate of increase may not necessarily be attributable to the State regulatory payment system.

Indeed, as demonstrated by Cromwell and Kanak (48), it is difficult to separate the effect of

the presence of a State's hospital prospective payment program from many other factors that may influence hospital costs and utilization of specific technologies. These factors include the mix of hospitals, the effectiveness of a complementary certificate-of-need program, the length of time the prospective payment program has been in effect, the type of rate review, and the baseline level of costs and services. When they reviewed the period between 1969 and 1978, Cromwell and Kanak (48) did find that in some States, the presence of a prospective payment system appeared to retard the diffusion of ICUs. It should be noted, however, that their analysis looked at the diffusion of intensive and coronary *units*, not at ICU/CCU beds. By 1969, the majority of hospitals already had established ICUs (205).

There is no systematic information available on whether ICU length of stay (LOS) is reduced in States with prospective payment programs.

## MEDICARE'S CURRENT INPATIENT HOSPITAL PAYMENT SYSTEM

### Description

Title VI of the Social Security Act Amendments of 1983 (Public Law 98-21) provided a dramatically new payment system for Medicare inpatient hospital services. A full discussion of the implications of Medicare's prospective payment system for ICU care is beyond the scope of this case study.<sup>1</sup> Nevertheless, a few preliminary observa-

tions on likely effects of the system on the provision of ICU care can be offered.

In brief, the current payment system is based on the concept of diagnosis-related groups (DRGs). Under this DRG system, which began to be phased in over a 3-year period on October 1, 1983, hospitals receive a fixed payment per discharge based on the patient's diagnosis. Hospitals that treat pa-

<sup>1</sup>See the Office of Technology Assessment's technical memorandum, entitled *Diagnosis Related Groups (DRGs) and the Medicare*

*Program: Implications for Medical Technology*, which describes the potential impact of the new payment system on medical technology (254).

tients for less than Medicare's payments are allowed to keep the difference. Those hospitals that spend more have to absorb the loss.

More specifically, under the DRG payment system, rates are set for each of 470 different DRGs.<sup>2</sup> More complex DRGs, such as kidney transplants (DRG 302), receive much higher payments than simpler cases, such as hernia repairs (DRG 161). Certain types of cases with complications or a secondary diagnosis receive a higher payment than cases without complications. For example, heart attacks with complications (DRG 121) receive a somewhat higher payment than uncomplicated heart attacks (DRG 122).

The DRG classification system, however, does not directly take into account severity-of-illness variations of patients who have the same primary diagnosis. For example, in one teaching hospital a group of only four patients in DRG 206 (disorders of the liver, excluding malignancy, cirrhosis, alcoholism, and hepatitis, age less than 70 without complications or comorbidities) had a range of charges from \$1,171 to \$114,515 (118).

The U.S. Department of Health and Human Services (DHHS), which proposed the DRG-based payment system, has recognized that within some DRGs, some patients may be more severely ill (264). DHHS argues that in DRGs where severity of illness is strongly associated with treatment cost, most hospitals will have patients who exhibit a range of severity levels, thus producing on balance only minor financial advantages or disadvantages to most general hospitals. In addition, as enacted, the DRG payment system provides for additional payments in "outlier" cases—atypical cases which have particularly long lengths of stay or which are unusually expensive. For those cases, the additional costs, which must range between 5 and 6 percent of the total national payments for discharges in a year, are based on the marginal cost of care beyond established LOS or cost cutoff points.

Regulations implementing the new law were published on January 3, 1984 (75). Under the regulations, a discharge could become either a "day"

<sup>2</sup>Although there are 467 DRGs for clinical conditions, there are 3 additional categories for payment purposes. Two of these categories involve reassigning the original classification and have no rates assigned.

outlier or a "cost" outlier. A day outlier is a discharge that exceeds the mean LOS for discharges within that DRG by the lesser of 20 days or 1.94 standard deviations. The mean LOS for each DRG are included in the regulations. If the discharge is considered a day outlier, the hospital will be paid 60 percent of the average per diem Federal rate for the excess days considered medically necessary. The 60-percent factor is intended to approximate the marginal cost of care for the excess days. However, a hospital will not be paid 60 percent of the actual costs of outlier days, but rather 60 percent of the average DRG per diem rate based on the DRG price.

Additional payments will be made for cost outliers if a hospital requests such payment and if the cost of a discharge exceeds the greater of 1.5 times the wage-adjusted Federal DRG payment or \$12,000. Additional payment will equal 60 percent of the difference between the hospital's adjusted cost for the discharge and the cutoff amount. The adjusted cost will be determined by multiplying the billed charges for the covered services by 72 percent, the charge-to-cost adjustment factor. Importantly, a discharge will not be considered a cost outlier if it qualifies as a day outlier.

DHHS estimates that initially 5.1 percent of all discharges will qualify as day outliers and only 0.9 percent as cost outliers. Indeed, DHHS intentionally established criteria that would result in substantially more day outliers than cost outliers for two reasons: the information necessary to determine day outliers is automatically and routinely available in the bill processing system; and payments to hospitals that may simply be high-cost, inefficient providers of care will be minimized.

Another payment decision in the DRG payment regulations could have specific relevance to ICU care. Hospitals transferring a patient to another institution are paid a per diem rate based on the average LOS for the DRG treated. Full payment for the DRG treated is made to the hospital from which the patient is finally discharged. For example, if hospital A treats a patient in a DRG with an average LOS of 10 days for an initial 4 days and then transfers the patient to hospital B, hospital A will receive 40 percent of the DRG payment and hospital B will receive a full DRG payment, regardless of the actual LOS in hospital B.

Finally, Medicare previously reimbursed hospitals for the reasonable costs of capital, which include depreciation, interest, and rent. Under the current law, capital expenses are specifically excluded from the prospective payment system and continue to be reimbursed on a reasonable cost basis until October 1, 1986. At that time, Congress will decide whether to continue to pay reasonable costs or to incorporate payment for capital into the DRG system.

### Medicare Utilization of ICUs by DRGs

Because ICU patients often have multiple diagnoses and suffer serious physiologic abnormalities that frequently do not correspond to disease entities, the DRG classification scheme may be poorly suited to describing ICU patients. Nevertheless, a preliminary analysis has been performed of the DRG case mix of Medicare ICU/CCU<sup>3</sup> patients based on available Health Care Financing Administration (HCFA) data for 1979 and 1980 (259,260). For the purpose of this analysis, multiple DRGs for the same primary diagnosis were combined. For example, DRGs 121 to 123—myocardial infarctions with differing clinical characteristics—were considered together.

Of the 15 DRG-based primary diagnoses with the longest average LOS in special care in 1979, 14 involved operating room procedures. The exceptions were the DRGs for myocardial infarctions. Another way to view DRG case mix is to consider special care as a percentage of total hospital stay. Of the 16 primary diagnoses in which special care represented at least 10 percent of the total hospital stay, 9 were medical diagnoses. However, these medical diagnoses were mainly for the cardiovascular system—mostly related to coronary artery disease. One can conclude that for DRGs involving certain operating room procedures and coronary artery disease, stays in special care units are standard and, therefore, captured by the DRG category. For example, 92 percent of cases for cardiac valve procedure with pump support (DRG 105) included special care. For many common surgical procedures and cardiac diagnoses, special care was utilized in more

than 70 percent of cases. For the remaining, predominately medical diagnoses, the DRG category does not reflect the use of special care units for the more severely ill patients with that principal diagnosis. For example, a number of ICU studies indicate that gastrointestinal bleeding in patients with cirrhosis is one of the ICU problems associated with both long ICU lengths of stay and high cost (40,50). Yet, the DRG for this condition, “cirrhosis and/or alcoholic hepatitis” (DRG 202), has a mean special care length of 0.6 days, or only 4.5 percent of the average total hospital LOS for discharges with this DRG.

A somewhat different picture of ICU use emerges when frequency of diagnosis is taken into account. By multiplying the number of discharges in the 20-percent MEDPAR sample<sup>4</sup> by the average LOS in special care, the number of special care days by diagnosis can be estimated. Table 10 shows the 15 diagnoses which use the most special care days. Again, cardiovascular disease predominates. However, diseases involving operating room procedures become less important as major special care diagnoses.

### Applicability of DRGs to ICUs

As noted above, the current DRG classification system may not be suitable for describing certain types of patients cared for in ICUs. DRGs are based on a principal diagnosis, with some additional categories available for patients with a single substantial secondary diagnosis, called a “comorbidity,” or a significant “complication.” Yet ICU patients often have multiple, serious underlying illnesses. In one study (265), ICU patients had on average over four major diagnoses, and the high-cost nonsurvivors had over six diagnoses. For these patients, designation of a principal diagnosis is likely to be arbitrary and unreliable at times. Furthermore, the additional diagnoses would not be accounted for.

As discussed earlier, many cardiac diseases, particularly those involving coronary diseases, and many of those surgical diagnoses involving operating room procedures, include stays in the ICU and CCU as a matter of routine. For exam-

<sup>3</sup>Available HCFA data combines ICU and CCU patients as special care patients.

<sup>4</sup>For a description of HCFA's MEDPAR data base, see ch. 4.

**Table 10.—Estimated Number of Special Care (ICU/CCU) Days by Primary Diagnosis Based on HCFA 20-Percent Sample of Medicare Discharges, 1980\***

Diagnosis	DRG	Special care		Routine care
		Total days	Percent of total hospital days	Total days
1. Myocardial infarctions . . . . .	121-123	176,963	33 %	362,013
2. Atherosclerosis . . . . .	132-133	103,781	14	625,450
3. Heart failure and shock . . . . .	127	87,347	11	693,439
4. Pneumonia and pleurisy . . . . .	89-91	78,211	13	555,115
5. Unrelated OR procedure . . . . .	468	66,451	9	734,684
6. Arrhythmia . . . . .	138-139	54,464	21	200,923
7. Angina . . . . .	140	53,926	22	194,653
8. Ungroupable . . . . .	470	51,100	6	734,684
9. Cerebrovascular accident . . . . .	14	42,120	5	715,668
10. Chronic obstructive pulmonary disease . . . . .	88	41,203	8	467,825
11. Pacemaker implant . . . . .	115-118	37,109	30	83,586
12. Coronary artery bypass surgery . . . . .	106-107	30,169	32	64,968
13. Pulmonary edema and respiratory failure . . . . .	87	28,371	25	83,276
14. Major bowel OR procedure . . . . .	148-149	27,191	10	242,188
15. Major reconstructive vascular procedure . . . . .	110-111	20,543	18	94,077

\*Multiple DRGs for the same primary diagnosis were combined for this analysis.

SOURCE: Office of Technology Assessment.

pie, in the United States it is standard to treat all patients with acute myocardial infarctions (heart attacks) in CCUs or ICUs. The average DRG price per discharge will reflect the portion of the hospital costs consumed in the higher cost special care unit.

However, the DRG categories for many medical diagnoses are so broad that ICU days represent only a small proportion of total hospital days. For example, in 1980, hospital stays for chronic obstructive pulmonary disease (DRG 88) and for cirrhosis of the liver (DRG 202) averaged only 0.82 and 0.60 days of intensive care, respectively (260). Yet, the sick patients within these DRGs may spend many days in the ICU and use more total hospital resources than patients within DRGs that include a much longer average special care stay. In other words, it appears that variations in severity of illness are particularly great for non-coronary, medical diagnoses that represent the medical patients in medical or mixed ICUs. Likewise, the DRG classification system does not satisfactorily account for patients with a primary surgical diagnosis who suffer major medical complications. For example, in a series of critically ill surgical patients, Cullen (54) found that renal failure (a costly medical complication) was a powerful predictor of ultimate survival. Many clinicians might agree that renal failure had become a patient's major clinical problem, but the DRG

system requires that the operating room procedure take precedence in DRG assignment. The presence of renal failure, then, would not significantly affect DRG payment.

Unfortunately, there is no data base available to test whether there are systematic differences by hospital type in severity of illness in ICU populations. DHHS'S initial evaluation found that teaching hospitals do have higher costs per case, suggesting, at least in part, that they treat more seriously ill patients (75). Survey tapes of the American Hospital Association document that major teaching hospitals do have 50 percent more ICU days as a percentage of total hospital days than nonteaching hospitals (106). These additional ICU days probably explain some of the higher costs per case in teaching hospitals.

However, without an accurate severity-of-illness measure, one does not know whether the additional ICU use in teaching hospitals represents the presence of a sicker population or a different threshold for transferring and maintaining patients in the ICU. Likewise, differences in resource use between ICUs may represent differences in severity of illness or differences in intensity and style of care. Preliminary results from 15 tertiary care hospitals recently surveyed by Knaus' group at George Washington University in Washington, DC, suggest that severity of illness, in fact, ac-

counts for a substantial portion of the differences in ICU resource use for patients with the same primary diagnosis (268).

Under Medicare's DRG payment system, many costly ICU cases will likely become outliers for whom only marginal costs above a day or cost threshold are paid. As was described earlier, by design, day outliers will predominate over cost outliers. Utilizing HCFA'S 1980 MEDPAR data, OTA has estimated that 12 percent of cases involving special care would be classified as day outliers, in comparison to 9 percent of total cases. By definition, the marginal costs for day outliers are calculated based on the DRG price, not the actual cost for that patient. Yet, as was noted in chapter 3, the cost per day in the ICU is over three times greater than the cost for a general hospital day. Thus, a hospital may receive far less than the actual marginal costs for caring for a long-term ICU patient. In short, the outlier payment rules generally favor less severely ill, non-ICU, long-stay patients, such as those with strokes or certain types of cancer, over more severely ill, long-stay ICU patients.

It would appear, then, that severely ill Medicare patients, especially if they are in the ICU, will be "revenue losers" to the hospital, even with an outlier policy in effect. This fact, combined with the lack of a financial penalty for transferring patients to a second hospital, may result in more interhospital transfers of the sickest ICU patients to tertiary care hospital ICUs. A regionalized system of ICU care that is common in some parts of Europe might thereby be stimulated in the United States, perhaps desirably. It should be noted, however, that unless either a severity-of-illness measure or a different outlier policy is adopted, the tertiary care hospital receiving severely ill transferred patients will be likely to lose financially. These hospitals would then face the dilemma of either not accepting these patients in transfer or of accepting these patients into their high-quality ICUs at a financial loss. At the extreme, tertiary care hospitals could, in effect, become large ICUs (212). Public hospitals and

some teaching hospitals, however, may simply be unable to sustain the costs of ICU care and be forced to ration care even more strictly than they do now (212).

The 3-year capital cost exclusion in the DRG law is not likely to affect ICUs, at least in the short run. ICU care is relatively costly largely because it is so labor-intensive. Common ICU technologies, such as cardiac monitors, respirators, pulmonary artery (Swan-Ganz) catheters, central feeding lines, etc., are labor-generating rather than labor-reducing technologies, because they require fairly constant attention.

As was noted in chapter 5, the monitor-only and other less severely ill ICU patients have been subsidizing the care of the most critically ill ICU patients. Under the DRG system, there may be a new incentive to treat monitor patients on regular floors or perhaps in intermediate care units. In addition, hospitals will attempt to pass on to charge payers the unreimbursed cost of ICU care to Medicare patients. The additional "pass-on," combined with nonadmission and earlier discharge of some of the less sick ICU patients, should result in substantially increased charges for an ICU day. The current 2.5:1 ratio of ICU bed charges to routine bed charges (71) will correspondingly rise.

In short, ICU care to Medicare patients will not be financially rewarding to hospitals under DRG payment. Almost all ICU cases are likely to be "losers" to the hospital—ICU days are about 3 to 3.5 times more costly than non-ICU days and ICU patients have longer hospital stays than non-ICU patients. The new incentives of the DRG payment system will be imposed on an ICU decisionmaking environment in many hospitals in which the costs of care had previously been a relatively minor concern. The implications of the collision between the hospital's new interest in reducing the cost of ICU care and a decisionmaking environment that results in expanding ICU care will be discussed in chapters 7 and 8.

## PHYSICIAN PAYMENT

In a fee-for-service system that pays on the basis of “usual, customary, and reasonable” standards, “technological and procedural” medicine has been rewarded (202). The ICU is a focal point for technological and procedural medicine within the hospital. Incubation, use of respirators, and arterial line placement are among the many ICU procedures that generally require ICU admission and numerous followup ICU visits by the patient’s primary and consulting physicians. Payment for ICU procedures and visits is generally high and is rarely questioned by insurers (166).

Patients in ICUs have multiple diagnoses and often multiple organ system failures. It is not surprising, therefore, that ICU patients have many physicians. Murata and Ellrodt (164), found in a large community hospital in which the ICU had full-time housestaff that at least one physician consultation was requested in 65 percent of the private admissions. In this study, private ICU patients had an average of nearly 2.5 physicians caring for them, in addition to round-the-clock housestaff coverage.

The situation is somewhat different in teaching hospitals and other large nonteaching hospitals. In these hospitals, there is usually one or more full-time staff physicians who help administer the ICU, provide staff education and, to varying degrees, participate in direct patient care. Although the specific payment method adopted by a particular hospital may be unique, compensation arrangements can generally be classified into one of four categories: fee-for-service, percentage

of income arrangements, salary only, and combinations of the first three (77). Straight salary arrangements represent the only compensation method that does not include a financial incentive component (77). In terms of ICU care, ICU staff physicians who are not paid on strict salary basis have a financial incentive to keep the unit filled and to perform procedures and provide technical services (166). Surveys on the prevalence of various compensation methods in U.S. hospitals have not specifically included ICU physicians (77). Similarly, the extent of ICU physician double billing (submitting fees for reimbursement for professional services while receiving salaries for administrative and educational activities, which are reimbursed as a hospital cost) is unknown.

Under DRG payment, ICU staff physicians may face conflicting payment incentives unless they are paid on a strictly salary basis. Given the high costs of ICU care, it may be in a hospital’s interest to increase the cost control function of ICU staff physicians and to pay them salaries as their primary form of remuneration. Hospitals could even provide incentive bonuses for reduced costs or decreased lengths of stays. In addition, hospitals which do not currently have ICU directors may find it in their economic interests to hire one to monitor the costs of care provided by private physicians who admit patients to the ICU. Thus, it is possible that a hospital’s attempt to reduce hospital ICU costs, paid under Part A of Medicare, might also indirectly result in a reduction in Part B physician payments.