The Problem With Diagnosis Related Group 475

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The reimbursement of hospital Part A cost by Medicare under the original prospective payment system (PPS) created serious financial problems for hospitals in many areas but was especially serious in patients receiving mechanical ventilation. Subsequent revisions of the PPS corrected some of the financial burden of the cost of such patients when the patient required tracheostomy for prolonged ventilator care, Diagnosis Related Group (DRG) 483. The problem that remains, however, is that only patients with a medical diagnostic classification (MDC) within the MDC 4 area, Diseases and Disorders of the Respiratory System, qualify for DRG 475, the only DRG other than DRG 483 that recognizes the cost of mechanical ventilation. This study evaluates the Part A costs of medical and surgical patients who received mechanical ventilation for ≥ 3 days during 1 year at Saint Marys Hospital and Rochester Methodist Hospital in Rochester, MN, who did not qualify for DRG 475. The analysis of the financial effect of these patients under the Medicare system reveals a significant monetary loss and this is compared to other payor groups.

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Key words: Diagnosis Related Group; Health Care Financing Administration; medical diagnostic classification; prospective payment system

Abbreviations: DRG = Diagnosis Related Group; MDC = medical diagnostic classification; PPS = prospective payment system

With the introduction of the prospective payment system (PPS) by the Health Care Financing Administration, it immediately became apparent that high-resource utilization patients, such as those receiving mechanical ventilation, were tremendous financial burdens for hospitals. A multicenter study by Gracey et al revealed that 150 Medicare patients in 53 different Diagnosis Related Groups (DRGs) who received mechanical ventilation for > 48 h had a mean Part A cost of $31,896. Mean reimbursement for these patients under the PPS system was $10,981. This reflected a loss of $20,915 per patient or $3,137,250 for the group of 150 patients.

To remedy this situation, the Health Care Financing Administration created DRG 474 and DRG 475. However, these two DRGs only recognized patients from medical diagnostic classification (MDC) 4, Diseases and Disorders of the Respiratory System. To qualify patients in DRG 474, the patient had to have had a tracheostomy performed for reasons other than for face, mouth, and neck diagnoses and receive mechanical ventilation. Patients in DRG 475 received mechanical ventilation with endotracheal tubes. Subsequent evaluation of the financial effect of DRGs 474 and 475 showed that they did little to relieve hospitals of the tremendous financial burden of patients receiving mechanical ventilation. DRG 483 was created in response to this problem.

In the current Prospective Payment System, patients receiving mechanical ventilation are now classified as DRG 483 if they undergo tracheostomy for reasons other than face, mouth, and neck pathology and receive mechanical ventilation no matter what the MDC of the patient. Any organ system classification can be included. However, patients receiving mechanical ventilation with an endotracheal tube must fall into the MDC 4 classification to qualify for DRG 475. Any patients in another MDC who receive mechanical ventilation with endotracheal tubes do not qualify for DRG 475 and are reimbursed under the PPS for the principle diagnosis. This means that the need for mechanical ventilation is not considered in calculation of the financial expenditure on these patients, and significant financial losses are experienced with ventilator care for patients with cardiovascular, neurologic, or other non-MDC 4 diagnoses. As an example of this problem, patients with stroke, head trauma, acute congestive heart
failure, acute myocardial infarction, shock, and drug overdose would not qualify for DRG 475.

In order to evaluate the financial implications for hospitals caring for patients receiving mechanical ventilation, we did an analysis of Part A costs for all patients, both medical and surgical, who received mechanical ventilation for 3 days with an endotracheal tube and who did not fall into DRG 475.

**Materials and Methods**

We did an analysis of Part A cost for all patients, both medical and surgical, who received mechanical ventilation for 3 days during the year 2000 who did not fall into DRG 475. In this analysis, only Part A costs were included. This analysis was carried out at Saint Marys and Rochester Methodist Hospitals in Rochester, MN, a Mayo Foundation tertiary-care academic medical center. There were a total of 1,181 such patients in the year 2000. Of this total, 710 were Medicare patients, 528 of them surgical and 182 medical. Of the Medicare patients, 32 surgical patients and 13 medical patients were patients at Rochester Methodist Hospital. There were also 471 patients, including Medicaid and Medical Assistance patients, 318 of them surgical and 153 medical, who had non-Medicare reimbursement. Only four of these non-Medicare patients were patients at Rochester Methodist Hospital. Analysis was carried out for the financial effect of surgical and medical Medicare patients, and non-Medicare patient payor groups.

**Results**

The results of our analysis are shown in Table 1. There were 528 Medicare patients who had surgical procedures and required 3 days of mechanical ventilation. The average Part A cost of these patients was $96,464, while the average reimbursement was $66,655, leading to a mean loss of $29,809. The loss for medical patients was significantly less with a mean cost of $50,301 and reimbursement of $33,878, for a loss of $16,423. The total hospital Part A loss for the medical patients was $2,988,986. The total loss for the surgical patients was $15,739,152. With the surgical and medical Medicare patients together, this led to a $18,728,138 financial deficit for the hospitals on Medicare patients alone.

In contrast to the Medicare patient experience, the 471 patients with payors other than Medicare, who also did not fall into DRG 475, had an average financial profile that was positive. The average Part A costs for these 471 patients was $87,993, while the average reimbursement was $106,534. The range of percent reimbursement for non-Medicare patients was 64.6 to 141.7% of costs or a $18,541 mean margin under Part A per patient. The margin for non-Medicare patients was $2,356 per patient for medical patients and $26,342 for surgical patients.

Analysis of the financial effect of Medicare and non-Medicare patients reveals a mean cost of $85,971 and reimbursement of $77,516, for a mean reimbursement of 90% of cost.

**Table 1—Non-DRG 475 Patients Receiving Mechanical Ventilation for 3 Days (n = 1,181)**

<table>
<thead>
<tr>
<th>Payor</th>
<th>Patients, No.</th>
<th>Cost Part A, $</th>
<th>Mean Part A Reimbursement, $</th>
<th>Reimbursement/ Cost, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical</td>
<td>528</td>
<td>96,464</td>
<td>66,655</td>
<td>69.0</td>
</tr>
<tr>
<td>Medical</td>
<td>182</td>
<td>50,301</td>
<td>33,878</td>
<td>67</td>
</tr>
<tr>
<td>Total</td>
<td>710</td>
<td>84,630</td>
<td>52,729</td>
<td>68.8</td>
</tr>
<tr>
<td>Non-Medicare</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgical</td>
<td>318</td>
<td>100,463</td>
<td>126,776</td>
<td>126.2</td>
</tr>
<tr>
<td>Medical</td>
<td>153</td>
<td>62,076</td>
<td>64,462</td>
<td>103.8</td>
</tr>
<tr>
<td>Total</td>
<td>471</td>
<td>162,539</td>
<td>106,534</td>
<td>121.1</td>
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<tr>
<td>All patients</td>
<td>1,181</td>
<td>85,971</td>
<td>77,516</td>
<td>90</td>
</tr>
</tbody>
</table>

*All other payors includes Medicaid. The total patients exclude 349 non-Medicare patients, mainly bone marrow, heart, and liver transplant patients.

**Discussion**

It is clear that caring for patients receiving mechanical ventilation costs Medicare a huge amount of money. Although current cost data are not available, the 1994 Medicare fiscal year data reveals that there were 89,293 Medicare patients with a DRG 475 assignment with a standard payment of $13,830 under Part A, for a total of $1,234,922,190. These DRG 475 patients had a mean length of stay of 12.9 days. In fiscal year 1994, Medicare paid $2,343,101,254 in Part A payments for 36,919 DRG 483 patients. The mean length of stay for these patients was 49.3 days, and the mean Part A payment was $63,466. These data suggest that Medicare paid > $2.5 billion in 1994 for patients receiving mechanical ventilation. These data are 7 years old, and current costs and reimbursement rates are clearly greater.

The PPS is clearly defective in that the patients who require ventilator care and do not undergo tracheostomy do not fall into MDC 4, and create clearly a considerable financial burden to hospitals that are already being adversely affected by the Medicare reimbursement system. The 1-year $18,728,380 loss in our two tertiary-care hospitals suggests that significant costs are not reimbursed to hospitals nationally for these patients on an annual basis.

A solution to this payment inequity must be found to more fairly compensate hospitals that care for these very ill patients. We previously suggested patients receiving mechanical ventilation, with or
without tracheostomy, should not be restricted to an MDC 4 principal diagnosis. Medicare realized this when they created DRG 483, because patients with tracheostomy receiving mechanical ventilation were patients receiving costly long-term mechanical ventilation. Now the financial burden of restricting DRG 475 to patients with an MDC 4 principal diagnosis needs to be relieved. It is not clear why DRG 475 was not expanded to all MDCs when DRG 483 was created. DRG 475 needs to be expanded to patients from all MDCs who require mechanical ventilation for a significant period of time with an endotracheal tube. Those patients who receive mechanical ventilation ≥ 5 days would be a good starting point to address this issue. Medicare needs to address this issue.

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REFERENCES