

Based on this analysis, we proposed to create new DRG 528 (Intracranial Vascular Procedure With a Principal Diagnosis of Hemorrhage) for patients with an intracranial vascular procedure and an intracranial hemorrhage. We proposed that cases involving intracranial vascular procedures without a principal diagnosis of hemorrhage would remain in DRGs 1 and 2.

We indicated that proposed new DRG 528 would have the following principal diagnoses:

- 094.87, Syphilitic ruptured cerebral aneurysm
- 430, Subarachnoid hemorrhage
- 431, Intracerebral hemorrhage
- 432.0, Nontraumatic extradural hemorrhage
- 432.1, Subdural hemorrhage
- 432.9, Unspecified intracranial hemorrhage
- And operating room procedures:
  - 02.13, Ligation of meningeal vessel
  - 38.01, Incision of vessel, intracranial vessels
  - 38.11, Endarterectomy, intracranial vessels
  - 38.31, Resection of vessel with anastomosis, intracranial vessels
  - 38.41, Resection of vessel with replacement, intracranial vessels
  - 38.51, Ligation and stripping of varicose veins, intracranial vessels
  - 38.61, Other excision of vessels, intracranial vessels
  - 38.81, Other surgical occlusion of vessels, intracranial vessels
  - 39.28, Extracranial-intracranial (EC-IC) vascular bypass
  - 39.51, Clipping of aneurysm
  - 39.52, Other repair of aneurysm
  - 39.53, Repair of arteriovenous fistula
  - 39.72, Endovascular repair or occlusion of head and neck vessels
  - 39.79, Other endovascular repair of aneurysm of other vessels

## (2) Ventricular Shunt Procedures

We also found that craniotomy patients who had a ventricular shunt procedure (absent another procedure) were significantly less costly than other craniotomy patients in DRGs 1 and 2. Ventricular shunts are normally performed for draining intracranial fluid. A ventricular shunt is a less extensive procedure than the other intracranial procedures in DRGs 1 and 2. As a result, if a ventricular shunt is the only intracranial procedure performed, these cases will typically be less costly.

There were 4,373 cases in which only ventricular shunt procedures were performed. These cases had average charges of approximately \$27,188.

However, the presence or absence of a CC had a significant impact on patient charges and lengths of stay. There were 2,533 cases with CC, with average charges of approximately \$33,907 and an average length of stay of 8.2 days. In contrast, there were 1,840 cases without CC, with average charges of approximately \$17,939 and an average length of stay of 3.7 days.

Therefore, we proposed to create two new DRGs, splitting with CC and without CC, for patients with only a vascular shunt procedure: proposed new DRG 529 (Ventricular Shunt Procedures With CC) and proposed new DRG 530 (Ventricular Shunt Procedures Without CC).

We indicated that proposed new DRG 529 would consist of any principal diagnosis in MDC 1 (erroneously cited as MDC 5 in the proposed rule), with the presence of a CC and one of the following operating room procedures:

- 02.31, Ventricular shunt to structure in head and neck
- 02.32, Ventricular shunt to circulatory system
- 02.33, Ventricular shunt to thoracic cavity
- 02.34, Ventricular shunt to abdominal cavity and organs
- 02.35, Ventricular shunt to urinary system
- 02.39, Other operations to establish drainage of ventricle
- 02.42, Replacement of ventricular shunt
- 02.43, Removal of ventricular shunt

We proposed that the proposed new DRG 530 would consist of any principal diagnosis in MDC 1 (erroneously cited as MDC 5 in the proposed rule) with one of the operating room procedures listed above for the proposed new DRG 529, but without the presence of a CC.

*Comment:* Four commenters supported the proposed creation of two DRGs to capture ventricular shunt procedures. Ten commenters supported the proposed creation of new DRG 528 for an intracranial vascular procedure with a principal diagnosis of hemorrhage.

Two commenters requested that CMS verify its GROUPE analysis and clarify in the final rule the estimated number of cases that will be assigned to DRG 528. One commenter also believed that CMS is underestimating the volume of hemorrhagic cases that would be assigned to this new DRG. The commenter indicated that its analysis of MedPAR 2001 data demonstrated 1,550 cases.

*Response:* We conducted an analysis based on later available MedPAR data and found 1,596 cases that would be assigned to DRG 528 (based on a full

year of MedPAR data). This volume is consistent with the commenter's analysis, although different MedPAR files were used in the analysis. In the proposed rule (68 FR 27161), we reported 917 cases based on preliminary data (6 months' worth of cases) that we analyzed when we considered the proposed change in the DRG classification. There were actually 1,354 cases grouped to the proposed new DRG 528 for the proposed rule.

*Comment:* One commenter suggested the creation of a new companion DRG to DRG 528 for intracranial vascular procedures for unruptured cerebral aneurysms. The commenter was concerned that the charges for endovascular repair of unruptured aneurysms is higher than other procedures currently assigned to DRG 2.

*Response:* The average charges for unruptured aneurysm cases varied according to the DRG to which the cases were assigned. The average charges for these cases in DRG 1 were slightly higher than the overall charges for that DRG, of approximately \$69,682 and \$54,900, respectively. However, we found that these charges are consistent with the variation of charges within this DRG and, therefore, did not propose a change in the DRG reclassification. Similarly, for cases assigned to DRG 2, we found the average charges of approximately \$36,077 are consistent with the overall average charges of that DRG of approximately \$32,000. We will continue to monitor these cases.

*Comment:* Three commenters requested a change to the DRG assignment of cases involving implantation of GLIADEL® chemotherapy wafers to treat brain tumors.<sup>2</sup> One of the commenters offered two options: create a new DRG or reassign these cases to DRG 484 (Craniotomy for Multiple Significant Trauma). The commenter cited an example in which CMS has in the past grouped together in the same DRG cases that are clinically dissimilar but similar in resource intensity when there were no other options available. For FY 1998 (62 FR 45974), coronary stent cases were moved from DRG 112 (Percutaneous Cardiovascular Procedures) to DRG 116 (Other Permanent Cardiac Pacemaker Implant or PTCA with Coronary Artery Stent Implant). In that instance, CMS concluded that, although coronary artery stent cases are not clinically similar to the pacemaker cases in DRG 116, the resource consumption of these

<sup>2</sup> We also discuss this issue later in this preamble under section I.L.E.3.b. relative to the application for new technology add-on payments for the GLIADEL® wafer.