NEDEXUS PHARMA

Cost-Effectiveness of Gleolan Guided Surgery Compared to Conventional White Light Surgery for High Grade Glioma

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Objective

To compare the cost per 'imaging complete resection' (ICR) with Gleolan (aminolevulinic acid HCI) oral solution (also known as 5-ALA) guided surgery in conjunction with blue light vs. conventional white light surgery in high grade glioma patients.

Methodology

- and within 72 hours after surgery and thereafter at 3-month intervals until radiological disease progression^{1,4,5}
- the analysis accounting for patients with a body mass of up to 150kg and representing a higher than average expected additive Gleolan cost
- intracranial procedures with major complication or comorbidity (MCC): \$27,167 (Figure 1)
- that represent 80% of all Gleolan utilization in the US: \$44,581 (Figure 1)

DRG ^a	Description	MDC ^b	GMLOS ^c
025	Craniotomy and endovascular intracranial procedures with MCC	1	6.60 days



Source: Optum EncoderPro.com for Payers Professional. Accessed September 20, 2022. https://www.encoderprofp.com/epro4payers

^a DRG - The diagnosis-related group (DRG) system organizes ICD-10-CM diagnosis and procedure codes into a complex, comprehensive system based on a few simple principles. The DRG system enables facilities to recover the appropriate payment for inpatient services rendered in an acute care hospital facility. DRGs are assigned using the principal diagnosis, up to eight additional diagnoses, the principal procedure and up to five additional procedure codes, age, sex, discharge status presence or absence of complications and comorbidities (CCs) and birth weight for neonates. One DRG is assigned to each inpatient stay. The case (inpatient stay) is assigned to one of the 25 major diagnostic categories. b Major Diagnostic Codes (MDC) are major diagnostic categories which are mutually exclusive groups based on principal diagnostic categories. The MDC applies to either a surgical section. The surgical section or medical section classifies all surgical conditions based on operating room procedures. The medical section classifies all diagnostic conditions based on diagnosis codes. ^c Geometric Mean Length of Stay. ^e Relative Weight. ^f payment rate for the DRG. ^g Calculated with an average hospital Medicare base rate of \$6,040.62

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Disclosure

Authors of this publication have financial or personal relationships with Medexus and may have an indirect or direct interest in the subject matter

Background	
 Gleolan is the only FDA approved optical imaging agent indicated in patients with glioma (WHO suspected Grades III and IV on preoperative imaging) as an adjunct for the visualization of malignant tissue during surgery¹ Gleolan has been associated with improved ICR and progression free survival^{4,5} Gleolan approval was based on data demonstrating nearly a doubling in the extent of ICR relative to conventional white light surgery (64% vs. 38%)¹ Literature published since approval of Gleolan has shown continued improvement in ICR with the use of Gleolan guided surgery compared to white light surgery^{6,7} 	
Results	
 Using the ICR percentage with Gleolan guided surgery vs. white light at time total" payment rate (\$44,581) for DRG 025, the cost per ICR achieved is sub "Base" payment rate (Figure 3): Cost per ICR with Gleolan guided surgery is "Average adjusted total" payment rate (Figure 4): Cost per ICR with Gleolan 	of app stantia 28% lo guided
Figure 3: ICR with Gleolan guided surgery relative to white light calculated using "base" payment for DRG 025	ל F ע



Conclusion

- Gleolan has been associated with improved imaging complete resection (ICR) and progression free survival^{4,5}
- Gleolan guided surgery demonstrated cost-effectiveness with the benefits of using Gleolan far outweighing the costs in all appropriate surgical patients where ICR is a goal of surgery
- Although Gleolan is additive to the cost of surgery, its use results in lower cost per ICR and therefore is a more efficient use of resources

Discussion

- light surgery





proval (64% vs. 38%), the "base" payment rate (\$27,167) and "average adjusted ally lower with Gleolan

ower vs. conventional white light surgery (\$51,817 vs. \$71,492)

surgery is 33% lower vs. conventional white light surgery (\$79,026 vs. \$117,318)

Figure 4: ICR with Gleolan guided surgery relative to white light calculated using "average adjusted total" payment for DRG 025

• Gleolan does not decrease the cost of surgery, however it does decrease the overall cost per ICR vs. conventional white

• Though not the focus of this analysis, further considerations and analysis could be assessed comparing Gleolan guided surgery to intra-operative MRI to better understand the value and cost benefit of hospital stay, operating room utilization, and perioperative nursing staff utilization

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