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*Original Communications*

# Neuroendocrine neoplasms of the bronchopulmonary tract

## *A classification of the spectrum of carcinoid to small cell carcinoma and intervening variants*

**Eighty-one primary pulmonary neuroendocrine neoplasms were assessed by the classification of Gould and associates. The neuroendocrine features of these tumors were studied by a combination of conventional light microscopy, electron microscopy, and immunohistochemical staining for hormonal substances and neuron-specific enolase. In each case, clinical follow-up was obtained to test the prognostic value of this new pathological classification. This study indicated that *bronchial carcinoids* are very low-grade neuroendocrine neoplasms that are locally invasive and only occasionally metastasize late in their course. *Well-differentiated neuroendocrine carcinomas* are relatively low-grade carcinomas that either present with or subsequently develop nodal or distant metastases in 73% of patients. *Intermediate cell neuroendocrine carcinomas* are highly aggressive tumors often mistakenly called "large cell undifferentiated carcinoma." Their clinical course is comparable to that of *small cell neuroendocrine carcinomas*, which has a mean survival of 9 months. The different clinical courses of these tumors demonstrate the predictive value of the proposed classification. It appears particularly valuable to identify well-differentiated neuroendocrine carcinoma as a low-grade carcinoma, distinct from true bronchial carcinoids. This classification may resolve some discrepancies regarding the therapy for and prognosis of "carcinoids" and their presumed variants.**

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Therapy for and management of bronchopulmonary neoplasms are dependent upon accurate diagnostic evaluation and pathological classification. In sharp contrast with other organ systems, the classification of broncho-

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