

## **Appendix A. Measures of Rurality, Quality of Life, and Co-morbidity**

### **Rurality**

We used patients' residential addresses and zip codes to determine whether they live in urban or rural areas. In our study, patients were considered "rural" if they reside in a rural location that could be a barrier to health care, particularly a barrier for obtaining needed chemotherapy for advanced lung cancer. We applied two approaches. First, we classified the address using the Rural-Urban Commuting Area Codes/RUCA.<sup>1,2</sup> For patients of whom RUCA suggested other than rural, we looked up the "Am I rural?" tool to define their rurality according to any of the following: Centers for Medicare & Medicaid Services (CMS), Federal Office of Rural Health Policy (FORHP), Medically Underserved Area (MUA), or Medically Underserved Population group(s) (MUP).<sup>3</sup>

### **Quality of Life**

To assess patients' quality of life, we used a portion of a validated Functional Assessment of Cancer Therapy – Lung (FACT-L) instrument version 4 from the American Thoracic Society, of which we have been granted permission to use. In our study, the original questionnaire assessed quality of life in the domains of physical well-being, functional-well-being, social and emotional well-being and additional concerns. We did not use the social and emotional well-being questions as they were not the focus of our study.

### **Comorbidity**

Patients' comorbidities were ranked using the Cumulative Illness Rating Scale for Geriatrics (CIRS-G).<sup>5</sup> We listed 14 health conditions including psychiatric/behavioral. For each condition experienced by patients, the physicians were asked to rank the severity of the conditions.

### **References:**

1. Rural-Urban Commuting Area Codes. United States Department of Agriculture Economic Research Service (USDA ERS) website <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/> . Updated October 12, 2016. Accessed October, 2016.
2. Geocoding System. Federal Financial Institutions Examination Council (FFIEC) website <https://geomap.ffiec.gov/FFIECGeocMap/GeocodeMap1.aspx> . Updated October 12, 2016. Accessed October, 2016.
3. Am I Rural? – Tool. Rural Health Information Hub website <https://www.ruralhealthinfo.org/am-i-rural> . Accessed October, 2016.
4. Functional Assessment of Cancer Therapy – Lung (FACT-L). American Thoracic Society website <http://qol.thoracic.org/sections/instruments/fj/pages/fact-l.html> . Accessed October, 2016.
5. Miller MD, Paradis CF, Houck PR, et al. Rating chronic medical illness burden in geropsychiatric practice and research: application of the Cumulative Illness Rating Scale. *Psychiatry Res.* 1992;41(3):237-248.