

### **\*Multi-Morbidity**

Multi-morbidity is a syndrome familiar to geriatricians and often observed among older HIV patients; it is more than simple co-morbidity. Multi-morbidity is conceptualized as several serious health conditions that cannot be cured to any great extent, occurring in an older person and engendering functional and/or cognitive debility. When considering treatment options in persons with multi-morbidity, the sum is greater than the parts. Aging plus debilitating conditions have the propensity to synergize to make morbidity and mortality worse than might otherwise seem apparent. In one study, the survival of older individuals with multi-morbidity was similar to populations of persons with metastatic colon cancer (Gross et al. 2006). The Panel sought to incorporate geriatric syndromic thinking into the considerations of clinical guidance taking into account multi-morbidity, frailty, and aging as distinct from chronological age. These considerations pervade each recommendation.

Multi-morbidity is increasingly becoming the norm rather than the exception among people with HIV infection. (Kim et al., 2012; Haase et al. 2011; Deeks et al. 2013). Patients with HIV are surviving long enough to experience HIV as a chronic disease, as well as a broad spectrum of co-morbidities. Non-AIDS-defining conditions including chronic kidney disease, metabolic and cardiovascular disease, and malignancies have been observed as increasing in incidence in recent years (Bonnet et al. 2004; d'Arminio Monforte et al. 2005; Gebo et al. 2005; Salmon-Ceron et al. 2005; Palella et al. 2006; Baker et al. 2007; Friis-Møller et al. 2010; Braithwaite et al. 2008; Braithwaite et al. 2005; Haase et al. 2011). Globally, there is increasing

recognition of the growing incidence of multimorbidity in the industrialized and developing world (Phaswana-Mafuya et al. 2013; Deeks et al. 2013). Multimorbidity associated with HIV disease could affect healthy aging and overwhelm some health-care systems, particularly those in countries that have not yet fully addressed the chronic disease epidemic in their health care systems. (Deeks et al. 2013). Furthermore, evidence is emerging that multimorbidity contributes to health disparities between groups (Vila-Rodriguez 2013).

The report contains many specific recommended treatment strategies for pairs of conditions, i.e., HIV and kidney disease. Some of these focus on HIV and the prevention of another disease, and some focus on the management of a patient with HIV and another condition. Cumulatively, this would result in a litany of recommendations for treatment of HIV, for the treatment of other illnesses, and preventive treatments. But it is known that if one applies disease-specific guidelines to a patient with multiple illnesses (e.g. hypertension, diabetes, osteoporosis, COPD and osteoarthritis, and HIV) the resultant treatment regimen is complex, involves a large number of disease specific medications and presents a demanding dosing pattern (Boyd et al. 2005). This particular constellation of diseases would not be uncommon in an older person with HIV/AIDS. The challenge is daunting when adding the complex management issues of HIV to an even-more complicated multi-morbidity treatment regimen with the added implications of adherence as well as drug-drug, drug-disease and disease-drug interactions (Braithwaite et al. 2005). An increasing number of comorbid conditions in people living with HIV is directly linked to an increase in the number of total medications (Haase et al. 2011).

Approaches to polypharmacy in people living with HIV merit further investigation, and must factor in the unique aspects of multimorbidity in HIV (Edelman et al 2013). If mental illness is present, cognitive impairment, substance use, or limited health literacy, an older adult's ability to adhere to such complex treatment regimens would be low (Stone et al. 2001). Most studies in HIV have focused on adherence to antiretroviral treatment (ART) but how treatment of other conditions affects adherence to HAART, and adherence to the overall treatment regimen is not known. Research suggests that variation in adherence patterns to ART and other treatments varies depending on symptom attribution, medication concerns, and coping strategies (Batchelder et al 2013; Wendorf et al. 2013).