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## People Living with HIV: Implications for Rehabilitation Nurses

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### Abstract

**Purpose**—To present a brief overview of challenges faced by people living with HIV (PLHIV) as they age, to discuss the relevance of HIV to rehab nurses, and to provide evidence-based recommendations for rehabilitation professionals working with PLHIV.

**Design**—Current Issues Article

**Methods**—Literature review related to age-related comorbidities in PLHIV with implications for rehabilitation nurses.

**Conclusions**—PLHIV experience higher rates of age-related comorbidities compared to the general population and will require rehabilitation expertise in their healthcare. Understanding unique characteristics of PLHIV as well as applying focused assessment and tailored interventions in PLHIV will give rehabilitation nurses the tools to successfully guide PLHIV through the rehabilitation process and optimize clinical outcomes.

**Clinical Relevance**—As people with HIV age and experience acute and chronic comorbidities, they will require the clinical expertise of rehabilitation nurses in the process to successfully transition through acute and sub-acute healthcare and regain function.

### Keywords

Aging; Comorbidity; Health; HIV; Rehabilitation

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Today, approximately 1.2 million people are living with HIV in the United States (Centers for Disease Control and Prevention [CDC], 2016b). Advances antiretroviral therapy (ART), the gold standard of treatment for HIV, have made it possible for people living with HIV (PLHIV) to achieve longer, healthier lives (National Institutes of Health [NIH], 2016). Today, more than 50% of PLHIV in the US are over the age of 50 (CDC, 2016a), and are experiencing age-related comorbidities, including cardiovascular and bone disease, at higher rates than the general population (Guaraldi et al., 2011). In the near future, as more PLHIV experience health problems requiring rehabilitation in the acute and post-acute settings,

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nurses working in rehabilitation settings will have an increasingly important role in helping them achieve and maintain health as they age. The purpose of this current issues article is to: (a) present a brief overview of challenges faced by PLHIV as they age, (b) to discuss the relevance of HIV and aging to rehab nurses, and (c) to provide evidence-based recommendations for rehabilitation professionals working with PLHIV.

## Aging with HIV

In the early days of the HIV epidemic, research and clinical efforts were dedicated to promoting survival in patients with the profound immunologic dysfunction caused by HIV infection. Combination ART made it possible for PLHIV to achieve and maintain HIV viral suppression, leading to increased survival, longer lifespan, and a higher quality of life (United States Department of Health and Human Services, 2016). Accompanying this progress, however, has been the realization that as PLHIV age, they encounter new challenges to their health that can interfere with healthy aging (Gallant, Meyer, Song, & McComsey, 2015; Weiss et al., 2016). Chronic immune activation, chronic inflammation, and progressive depletion of CD4+ T-cells experienced by PLHIV have been associated with the development of cardiovascular and metabolic comorbidities, including coronary plaque development, direct myocardial injury, left ventricular dysfunction, accelerated bone resorption, suppression of bone remodeling, and fractures (Carr, 2008; Hileman, Labbato, Storer, Tangpricha, & McComsey, 2014; Longenecker, Sullivan, & Baker, 2015; McComsey et al., 2010; Stein & Hsue, 2012). Furthermore, certain HIV treatments have been linked to dyslipidemia, insulin resistance, and bone loss, further increasing their risk for the development of comorbid conditions and acute cardiovascular and metabolic health complications (Anastos et al., 2007; Bedimo, Maalouf, Zhang, Drechsler, & Tebas, 2012; Brown et al., 2009; Brown & Qaqish, 2006; Calmy et al., 2013; Carr, 2008; Daria et al., 2011; Hileman et al., 2014; McComsey et al., 2010; Mueller et al., 2010; Mulligan et al., 2012; Ridha, Devitt, Boffito, & Boag, 2011). Compounding the risks is HIV and its treatment. PLHIV also have higher rates of traditional risk factors for cardiovascular and metabolic health complications including smoking, substance misuse, and low body mass index (BMI) (Bolland, Grey, Gamble, & Reid, 2007; Kwan, Eckhardt, Baghdadi, & Aberg, 2012; Paul et al., 2010; Perazzo & Webel, 2016; Walker-Harris et al., 2012; Wasserman & Rubin, 2010; Yin et al., 2011).

## Relevance to Rehabilitation Nurses

Rehabilitation nurses possess expertise in the effective transition of patients in acute and sub-acute settings, with care goals of restoring function among individuals who have experienced acute health crises and/or are living with chronic disease (Camicia et al., 2014). The transition of HIV to a chronic, manageable disease, coupled with the increased risk for cardiovascular and metabolic health complications among PLHIV will likely result in increased encounters between rehabilitation nurses and the aging population of PLHIV. In the near future, there will be an increased need for rehabilitation expertise for older adults with HIV to achieve and maintain optimal health (CDC, 2016a, 2016b).

To accomplish the rehabilitative goals for PLHIV, nurses and the multidisciplinary teams within which they function, will benefit from a better understanding of unique physiological and psychosocial challenges faced by PLHIV. Perhaps more than most healthcare professionals, rehabilitation nurses must be able to understand and navigate individual patient characteristics and circumstances across a large continuum of inpatient, transitional, outpatient, and homecare settings (Camicia et al., 2014). In the following sections, we present evidence-based considerations for rehabilitation nurses working with PLHIV with an aim of helping rehabilitation nurses to optimize the care of PLHIV and help them to achieve maximal functioning.

## **Sensitivity and Privacy Regarding HIV Status in Rehabilitation Healthcare Encounters**

Despite efforts to raise awareness and educate the public about HIV, lack of understanding and stigma associated with HIV still exist (Bova, Nnaji, Woyah, & Duah, 2014; Kinsler, Wong, Sayles, Davis, & Cunningham, 2007; Stangl, Lloyd, Brady, Holland, & Baral, 2013). Stigma can affect PLHIV through harmful overt acts of malice and discrimination from others, and internalized thoughts of being different or inferior because of one's HIV status (Sayles, Wong, Kinsler, Martins, & Cunningham, 2009). Fear of HIV status disclosure and its associated stigma is related to the avoidance of healthcare encounters, disrupted trust between patients and providers, non-adherence to prescribed care, anxiety, guilt, and depression. Rehabilitation nurses are faced with the challenge of incorporating HIV-related care, treatment, and self-management into the plan of care while respecting patients' boundaries regarding disclosure of HIV status. Providing such care can be particularly difficult while attempting to provide family-centered care during care transitions and when assessing the social and emotional support an individual has outside the clinical environment.

Throughout the course of the healthcare interaction, it is important for the healthcare team to assess and honor an individual's wishes regarding discussion about HIV. A recent systematic review highlighted that fear of inadvertent disclosure in public places (e.g. taking HIV medications around others) can result in a patient experiencing psychological discomfort and even choosing to skip crucial medication doses (Sweeney & Venable, 2016). Healthcare environments in which others are present (e.g. visitors) can create a potential venue for inadvertent disclosure. Rehabilitation nurses can leverage the admission/initial rehab assessment to have a private conversation and determine patient preferences (e.g. "We want to be sure we respect your privacy regarding HIV. Do your spouse/family member(s) know that you have HIV? Do you prefer not to discuss HIV in front of others?"). Approaching the matter in a direct and respectful way will help the healthcare team to tailor their approach of the patient and family members, empower the patient, avoid causing discomfort, and build trust in the patient-provider relationship. Understanding the patient's wishes with regard to HIV disclosure is also an important component of assessing social support and ability to self-care, particularly following inpatient hospitalization when the patient may require assistance. In the event that a patient wishes to keep their HIV status private, rehabilitation nurses should exercise caution particularly during the following interactions:

- Medication distribution and education: request for privacy during medication administration (similar to request for privacy for bathing/dressing patient)
- Bedside and home-based discussions with patients and providers when family members are in the room
- During handoff procedures, disclosure preferences should be stressed to team members unfamiliar with the patient/patient's family
- During patient-authorized conversations with family members and loved ones about the patient's current health status and plan of care

## Increased Risk for Delayed or Complicated Healing

HIV infection has been associated with physiological, psychosocial, and lifestyle factors that are potential contributors to delays and complications in the healing process. In this section, we discuss some of these factors and their potential implications in the healing process. Acute health events requiring subsequent rehabilitation may require surgical intervention (e.g. orthopedic, cardiac surgical procedures). Results of studies examining the safety and long-term implications of surgical interventions in HIV patients have been varied (Horberg et al., 2006). Some studies have demonstrated little difference in surgical healing and outcomes compared to people not living with HIV, while others have suggested that PLHIV are more likely to experience delayed healing and postoperative complications (Randelli et al., 2014; Richardson et al., 2008; Triant, Brown, Lee, & Grinspoon, 2008). Furthermore, evidence suggests that successful healing after surgical interventions may be related to how well an individual's HIV is controlled at the time of surgery, with more complications experienced by individuals who are more immunocompromised compared to those who are virally suppressed (Horberg et al., 2006; Richardson et al., 2008). It has also been suggested that the abnormal inflammatory environment associated with HIV may adversely impact surgical healing in PLHIV. Specifically, higher baseline inflammation may result in desensitization of immune cells in response to injury (Richardson et al., 2008), resulting in delayed healing (e.g. surgical incision, fractures) compared to individuals not living with HIV.

PLHIV have higher rates of smoking, alcohol use, and substance misuse compared with people not living with HIV (AUTHORS..BLINDED FOR REVIEW). Engaging in these behaviors can result in disrupted metabolism of crucial nutrients, diminished efficacy of medications, increased inflammation and decreased engagement in HIV self-management behaviors (National Institute on Alcohol Abuse and Alcoholism, 2010), and can potentially derail even the most tailored care and treatment plan. PLHIV also experience high rates of fatigue and (Barroso & Voss, 2013; Corless et al., 2008; Voss, 2005). and are at high risk for social isolation and lack of social support (Webel et al., 2014). These factors increase the potential for delayed or, ultimately, unsuccessful healing. Rehabilitation nurses possess the skills and expertise necessary to address the numerous, often-convergent health problems facing the patient as they progress through the rehab continuum.

Nursing care is a crucial component of the healing process at all levels of healthcare (Camicia et al., 2014). Rehabilitation nurses, with their expertise in care transitioning,

benefit from understanding these nuances and applying assessments and interventions to help PLHIV achieve maximal function. Delayed or complicated healing related to HIV may result in a longer rehab timeline, and PLHIV may heal more slowly, or may exhibit a lack of readiness to progress to the next stages of their care as readily as others. As such, rehabilitation nurses should engage in open communication with patients about their living situation and social support and vigilantly assess patients for signs of infection and re-injury across the continuum of rehabilitative healthcare. A thorough review of HIV-related medical history to determine how well the patient's HIV is under control and use of evidence-based clinical assessment tools (e.g. PHQ-9 (Kroenke, Spitzer, & Williams, 2001), Alcohol Use Disorders Identification Test [AUDIT] (Saunders, Aasland, Babor, De la Fuente, & Grant, 1993), Drug Abuse Screening Test [DAST] (Skinner, 1982), etc.) will help rehab nurses to tailor their approach and mitigate the impact of physiological and psychosocial problems that could interfere with successful healing. Pragmatic interventions by rehabilitation nurses (e.g. provision of nicotine patches, addiction assessment and counseling, advocacy for social service intervention) can also prevent or mitigate the impact of physiological, psychosocial, and lifestyle factors that might otherwise prevent successful progression through the rehab process, particularly when the patient is no longer in an inpatient (care-intensive) setting.

## Promotion of Self-Management Behavior

Helping people to self-manage their health is a key element of rehabilitation, and self-management is widely recommended by health authorities (e.g. American Heart Association, National Institutes of Health, etc.). Rehabilitation nurses working with PLHIV can not only help them to progress through the stages of healing, but can also arm these individuals with skills they can use in future to prevent injury and illness and to promote health. Such self-management behaviors include: physical activity, healthy nutritional choices, and medication adherence (Lorig & Holman, 2003).

### Physical Activity

Engagement in physical activity includes structured exercise and general (aka "free-life") physical activity that individuals perform in their everyday lives. Research on physical activity patterns in PLHIV is ongoing (Webel et al., 2015), but researchers have found that engaging in regular physical activity has the potential to reduce cardiovascular health events and symptom distress (Carr, 2008; Hileman et al., 2014; McComsey et al., 2010; Ridha et al., 2011) and to mitigate the impact of bone loss (Cotter & Mallon, 2012). Poverty is common in populations highly affected by HIV (CDC, 2015), and access to a public facility for exercise may not be an option. Rehabilitation nurses should collaborate with physical and occupational therapists, physicians, and PLHIV to develop physical activity plans that can be completed in the home with little or no cost, which can promote a more sustainable health change. Healthcare team members should teach and demonstrate exercises and request the patient to teach-back and demonstrate to ensure understanding of technique and to promote patient safety. Finally, providing written and electronic resources (as appropriate) will afford patients the ability to revisit basic instruction on exercise, and to progress to higher-level physical activity as recommended by their providers.

## Nutrition and Diet

The ability to obtain and take in adequate nutrition is of particular concern among PLHIV. PLHIV face both physiological (HIV-infection, medication side effects) and psychosocial (e.g. food insecurity, inability to obtain nutritious food) challenges that contribute to poor nutrition, increasing their risk of developing of comorbid conditions, higher risk for illness and injury, and can interfere with successful healing from acute health events (e.g. fractures, surgical procedures) (Feldman, Alexy, Thomas, Gambone, & Irvine, 2015; Mussi, 2016; Palar et al., 2015). Nutritional deficiencies and poor diet choices contribute to malnutrition, obesity, bone loss, and their associated comorbidities (Shiau, Arpadi, & Yin, 2015). Adequate protein, caloric, calcium, vitamin D, fat, and sodium intake are essential to successful surgical recovery and to achieving healthy weight, healthy bones, and cardiovascular health (Hileman, Eckard, & McComsey, 2015; Shiau et al., 2015). Geographic and socioeconomic factors can prevent individuals from being able to purchase healthy foods (Feldman et al., 2015; Palar et al., 2015). Rehabilitation nurses can advocate for patients by initiating discussions with providers about dietician consultation to ensure dietary needs of individual patients are met, and realistic and sustainable food plans are integrated into the rehabilitation process. Addressing nutritional deficits is of paramount importance to promoting long-term health in PLHIV, and rehabilitation nurses will continue to play a major role in educating and promoting healthy eating by PLHIV.

## Medication Adherence

HIV medication adherence is a foundational aspect of HIV self-management, and crucial to maintaining long-term health in PLHIV (NIH, 2016). Failure to adhere to medications can lead to accelerated decline in immune status, progression to AIDS, higher risk for infections, and resistance to HIV treatments (Chesney, 2006; Holtzman, Brady, & Yehia, 2015). Poor immune status is associated with greater vulnerability to infection, and higher rates of age-related comorbidities in PLHIV (Guaraldi et al., 2011). In all venues of healthcare, encouraging PLHIV to adhere to treatment regimens should be of paramount importance, in particular during times when new health challenges may require additional treatments. Rehabilitation professionals can help promote treatment adherence by partnering with PLHIV to determine how to best integrate new treatments into their everyday lives, enabling them to achieve optimal adherence. It is important for rehabilitation professionals to understand the possible medication interactions and side effects of newly-introduced treatments (Edelman et al., 2013), and provide PLHIV with strategies they can adopt to prevent or mitigate such effects. Such efforts may decrease the likelihood of non-adherence to treatment due to challenging or intolerable circumstances during the rehabilitation process.

## Conclusion

In this article we have presented an overview of challenges faced by the aging population of PLHIV, discussed the relevance of HIV to rehabilitation nurses, and provided guidance on several major issues likely to be encountered by rehabilitation nurses working with PLHIV. PLHIV are experiencing age-related comorbidities at a higher rate than people who are not living with HIV, including cardiovascular disease, metabolic abnormalities, and bone loss. A

multifactorial interplay between HIV infection, HIV treatment, traditional risk factors for cardiovascular and metabolic health problems, and lifestyle factors contribute to this increased risk. Rehabilitation nurses are among the most well positioned healthcare professionals to help PLHIV as they age to maintain optimal health and function while living with chronic disease.

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No

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### Key Practice Points

People living with HIV face unique challenges as they age that increase their risk of cardiovascular and metabolic comorbidities, including physiological consequences of HIV infection (e.g. chronic inflammation), and higher rates of traditional risk factors for comorbidities (e.g. smoking, alcohol, fatigue, depression).

HIV infection, stigma, social isolation, and comorbidities place people living with HIV at risk for unsuccessful rehabilitation due to delayed or complicated healing, distrust of healthcare providers, and lack of social support.

Nurses working in rehabilitation settings benefit from understanding physiological nuances in people living with HIV, understanding psychosocial concerns (e.g. disclosure anxiety, stigma), and tailoring assessments and interventions accordingly.

Nurses working in rehabilitation settings will play a pivotal role in ensuring successful care transition and restoration of function of people living with HIV who experience acute health crises and chronic disease.