

HIV and Aging

Interdisciplinary Topics in Gerontology and Geriatrics

Vol. 42

Series Editor

Tamas Fulop Sherbrooke, Que.

HIV and Aging

Volume Editors

Mark Brennan-Ing New York, N.Y.

Rosanna F. DeMarco Boston, Mass.

12 figures, and 12 tables, 2017

KARGER Basel · Freiburg · Paris · London · New York · Chennai · New Delhi ·
Bangkok · Beijing · Shanghai · Tokyo · Kuala Lumpur · Singapore · Sydney

Mark Brennan-Ing, PhD
Director for Research and Evaluation
ACRIA Center for HIV and Ageing
575 8th Avenue, Suite 502
New York, NY 10018 (USA)

Rosanna F. DeMarco, PhD
Chair and Professor, College of Nursing and
Health Science
University of Massachusetts Boston
100 Morrissey Boulevard
301-66 Science Center
Boston, MA 02125-3393 (USA)

Library of Congress Cataloging-in-Publication Data

Names: Brennan-Ing, Mark, editor. | DeMarco, Rosanna F., editor.
Title: HIV and aging / volume editors, Mark Brennan-Ing, Rosanna F. DeMarco.
Other titles: HIV and aging (Brennan-Ing) | Interdisciplinary topics in gerontology and geriatrics ; v. 42. 2297-3508
Description: Basel ; New York : Karger, 2017. | Series: Interdisciplinary topics in gerontology and geriatrics, ISSN 2297-3508 ; vol. 42 | Includes bibliographical references and indexes.
Identifiers: LCCN 2016039580 | ISBN 9783318059458 (hard cover : alk. paper) | ISBN 9783318059465 (electronic version)
Subjects: | MESH: HIV Infections--complications | Aging--physiology
Classification: LCC RA643.8 | NLM WC 503.5 | DDC 618.97/69792--dc23
LC record available at <https://lccn.loc.gov/2016039580>

Bibliographic Indices. This publication is listed in bibliographic services, including Current Contents® and PubMed/MEDLINE.

Disclaimer. The statements, opinions and data contained in this publication are solely those of the individual authors and contributors and not of the publisher and the editor(s). The appearance of advertisements in the book is not a warranty, endorsement, or approval of the products or services advertised or of their effectiveness, quality or safety. The publisher and the editor(s) disclaim responsibility for any injury to persons or property resulting from any ideas, methods, instructions or products referred to in the content or advertisements.

Drug Dosage. The authors and the publisher have exerted every effort to ensure that drug selection and dosage set forth in this text are in accord with current recommendations and practice at the time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package insert for each drug for any change in indications and dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new and/or infrequently employed drug.

All rights reserved. No part of this publication may be translated into other languages, reproduced or utilized in any form or by any means electronic or mechanical, including photocopying, recording, microcopying, or by any information storage and retrieval system, without permission in writing from the publisher.

© Copyright 2017 by S. Karger AG, P.O. Box, CH-4009 Basel (Switzerland)
www.karger.com

Printed in Germany on acid-free and non-aging paper (ISO 9706) by Kraft Druck GmbH, Ettlingen
ISSN 2297-3508
e-ISSN 2297-3486
ISBN 978-3-318-05945-8
e-ISBN 978-3-318-05946-5

Contents

VII Preface

Sprague, C. (Boston, Mass.)

Introduction

1 Local and Global HIV Aging Demographics and Research

Sprague, C. (Boston, Mass./Johannesburg); Brown, S.M. (Boston, Mass.)

Part I: Physiological Changes and Clinical Biomarkers in HIV and Aging

11 Are HIV-Infected Older Adults Aging Differently?

Karpiak, S.E.; Havlik, R. (New York, N.Y.)

28 Cellular Senescence, Immunosenescence and HIV

Fülöp, T. (Sherbrooke, Que.); Herbein, G. (Besançon); Cossarizza, A. (Modena); Witkowski, J.M. (Gdansk); Frost, E.; Dupuis, G. (Sherbrooke, Que.); Pawelec, G. (Tübingen); Larbi, A. (Singapore)

47 Biomarkers and Clinical Indices of Aging with HIV

Fitch, K.V.; Feldpausch, M.N.; Looby, S.E.D. (Boston, Mass.)

Part II: Multimorbidity and Geriatric Care of HIV Patient

59 Multimorbidity and Burden of Disease

Brown, T.T. (Baltimore, Md.); Guaraldi, G. (Modena)

74 Polypharmacy, Using New Treatments to Customize Care for Aging Patients and Adherence Present and Future

Alberts, L.H. (Boston, Mass.)

85 Behavioral Health

Pantalone, D.W.; Czajkowski, S.E.; Taylor, S.W. (Boston, Mass.)

101 Disability among Persons Aging with HIV/AIDS

Leveille, S.G.; Thapa, S. (Boston, Mass.)

119 Application of Geriatric Principles and Care Models in HIV and Aging

Sangarlangkarn, A. (New York, N.Y./Bangkok); Avihingsanon, A. (Bangkok); Appelbaum, J.S. (Tallahassee, Fla.)

Part III: Psychosocial Issues in Aging with HIV

134 Sexual Health, Risk and Prevention

Aronowitz, T. (Boston, Mass.)

- 144 **Stigma in an Aging Context**
Emlert, C.A. (Tacoma, Wash.)
- 159 **Social Support Systems and Social Network Characteristics of Older Adults with HIV**
Brennan-Ing, M.; Seidel, L.; Karpiak, S.E. (New York, N.Y.)
- 173 **Remediating HIV-Associated Neurocognitive Disorders via Cognitive Training: A Perspective on Neurocognitive Aging**
Vance, D.E.; Cody, S.L.; Moneyham, L. (Birmingham, Ala.)
- 187 **Mental Health, Psychosocial Challenges and Resilience in Older Adults Living with HIV**
Halkitis, P.N.; Krause, K.D.; Vieira, D.L. (New York, N.Y.)
- 204 **Medical, Social and Supportive Services for Older Adults with HIV**
Cox, L.E. (Galloway, N.J.); Brennan-Ing, M. (New York, N.Y.)
- 222 **The Relevance of Palliative Care in HIV and Aging**
Shorthill, J. (Tigard, Oreg.); DeMarco, R.F. (Boston, Mass.)

Part IV: Concluding Remarks

- 234 **Ageism, Aging and HIV: Community Responses to Prevention, Treatment, Care and Support**
DeMarco, R.F. (Boston, Mass.); Brennan-Ing, M. (New York, N.Y.); Brown, S.M.; Sprague, C. (Boston, Mass.)
- 240 **Author Index**
- 241 **Subject Index**

Preface

Overview of National and Global Data

An estimated 3.6 million people aged 50 years or older were living with HIV in 2013, of a total population of 35.3 million with HIV worldwide. The majority – numbering 3 million – reside in low- and middle-income countries (LMICs), primarily in sub-Saharan Africa, with the remaining 600,000 in high-income countries (HICs), encompassing the regions of Western and Central Europe and North America. In HICs today, an estimated 30% of people with HIV are aged 50 years or older [1]. In countries in North and South America, including the United States and Brazil, this figure is an estimated 50% [2, 3]. These figures are underpinned by 2 simultaneous shifts: an increasing proportion of individuals with HIV are living longer and aging with HIV globally; and older individuals are newly acquiring HIV [4].

Despite decades of attention on building a global HIV research and programming agenda, HIV in older populations has generally been neglected until recently [1, 2]. Indeed, Demographic Health System and HIV prevalence data captured by UNAIDS, as well as other national and global prevalence surveys, largely report data for age groups up to age 49 only [4, 5]. In spite of data limitations, the overall trend is clear: the increasing proportion of those with HIV over 50 years of age, who are living longer across countries, comprises a significant aspect of the changing global HIV epidemic today [1, 4].

This phenomenon – aging with HIV – is attributed primarily to 3 factors: (a) greater access to combination antiretroviral therapy (cART) and increasing effectiveness of cART in prolonging life and reducing mortality; (b) declining HIV incidence in younger populations, shifting the burden of HIV to older populations; and (c) HIV risk behaviors evident among older individuals [4]. Age at HIV infection appears to be increasing significantly. At the same time, age at HIV diagnosis has increased; and HIV incidence (new HIV infections) is increasing in older adults as a consistent pattern worldwide [6].

Generally, trends vis-à-vis HIV and aging are informed by 2 larger transitions. The first is an unprecedented demographic shift, or change in birth and death rates across regions of the world, whereby mortality rates have declined in an unprecedented man-

ner and life expectancy at birth has increased over the last 50 years [7, 8]. The effect is that people are living longer in each country, with a few exceptions. With a global population that is aging, the health and medical needs of the world's population are also changing, including those with HIV [2, 10]. The second marked shift is a global health transition, particularly in the LMICs. In the developing world, infectious diseases like tuberculosis and HIV have historically been significant causes of death. While HIV is the sixth leading global cause of deaths among adults, HIV and other communicable diseases combine with maternal, perinatal, and nutritional conditions to comprise over 60% of mortality in the Africa region. In recent years, however, non-communicable diseases (NCDs), led by ischemic heart disease and stroke, have become significant causes of death and are expected to increase further [7]. Economic growth in LMICs and increasing urbanization have been associated with poor nutrition; lack of exercise and obesity are other factors associated with increases in NCD prevalence [9]. Other causes of injury and premature death in LMIC settings, such as road accidents, maternal mortality, and malnutrition, are likely to remain significant causes of injury and death in particular regions. This suggests that NCDs are likely to supplement infectious diseases like HIV as leading causes of morbidity and mortality in those aging with HIV. In addition, there is increasing evidence that mental illness has been under-documented in the developing countries to date and may contribute greatly to mortality and morbidity than previously thought, leading to a triple or quadruple burden of disease in LMIC. Evidence indicates that depressive symptoms in older populations are likely to increase; those living with or at risk of HIV have particular mental health and social support needs that must be addressed through health and social services [2, 7, 9].

Taken together, the demographic and health transitions have significance, not only for HIV diagnosis and treatment but also for HIV risk factors and health determinants including social determinants, which affect global and national burdens of disease. These transitions influence planning, including health workforce preparation, health service delivery, clinical care, and health systems [8–10]. Equally, there is some indication that, with health financing and health care reform underway in many regions, HIV will need to maintain its position as a priority global health concern amid a changing landscape of other health conditions and diseases [10, 11].

The chapters presented in this book represent what we have learnt thus far as well as the emerging knowledge related to 'aging' of the HIV experience. More than 30 years into the global HIV epidemic, 10% of the world's HIV positive population is now aged 50 or older, with this number projected to increase [4]. One of the most important conclusions drawn by the international community vis-à-vis HIV responses, now a key assumption embedded in national strategic plans on HIV and AIDS, is to understand the unique features of this epidemic, the populations affected, and tailor responses, giving rise to the 'know your epidemic, know your response' approach led by UNAIDS [4]. Developing priority agendas on existing research and evidence must be in accordance with national health priorities. This renders a research or program-

ming agenda across many regions emergent and exploratory. At the same time, the need for health promotion and protection in older populations who have acquired HIV or are at risk of transmission – once obscured – is becoming much more visible, requiring multiple points of research and intervention. It is our intention to bring visibility to aging and HIV, in order to inform research, policy and clinical practice.

Courtenay Sprague, Boston, Mass.

References

- 1 Joint United Nations Programme on HIV and AIDS (UNAIDS): AIDS by the Numbers. Geneva, UNAIDS, 2013.
- 2 High KP, Brennan-Ing M, Clifford DB, Cohen MH, Currier J, Deeks SG, Deren S, Effros RB, Gebo K, Goronzy JJ, Justice AC, Landay A, Levin J, Miotti PG, Munk RJ, Nass H, Rinaldo CR Jr, Shlipak MG, Tracy R, Valcour V, Vance DE, Walston JD, Volberding P; OAR Working Group on HIV and Aging: HIV and aging: state of knowledge and areas of critical need for research. A report to the NIH office of AIDS research by the HIV and aging working group. *J Acquir Immune Defic Syndr* 2012;60(suppl 1):S1–S18.
- 3 Cardoso SW, Torres TS, Santini-Oliveira M, Marins LM, Veloso VG, Grinsztejn B: Aging with HIV: a practical review. *Braz J Infect Dis* 2013;17:464–479.
- 4 UNAIDS: HIV and Aging: Special Supplement to the UNAIDS Report on the Global AIDS Epidemic 2013. Geneva, UNAIDS, 2013. http://www.unaids.org/sites/default/files/media_asset/20131101_JC2563_hiv-and-aging_en_0.pdf.
- 5 Negin J, Cumming RG: HIV infection in older adults in sub-Saharan Africa: extrapolating prevalence from existing data. *Bull World Health Organ* 2010;88:847–853.
- 6 Costagliola D: Demographics of HIV and aging. *Curr Opin HIV AIDS* 2014;9:294–301.
- 7 World Health Organization: World Health Statistics. Geneva, WHO, 2014.
- 8 Bloom D, Canning D: Global Demographic Change: Dimensions and Economic Significance. National Bureau of Economic Research (NBER) Working Paper No. 10817 (September) JEL No. J11, O40 Cambridge (MA): NBER 2004.
- 9 Chatterji S, Kowal P, Mathers C, Naidoo N, Verdes E, Smith JP, Suzman R: The health of aging populations in China and India. *Health Aff (Millwood)* 2008;27:1052–1063.
- 10 UNAIDS: Access to Antiretroviral Therapy in Africa: Status Report on Progress Towards 2015 Targets. Geneva, UNAIDS, 2013. http://www.unaids.org/sites/default/files/media_asset/20131219_AccessARTAfricaStatusReportProgressToward-2015Targets_en_0.pdf.
- 11 UNAIDS: The Gap Report. Geneva, UNAIDS, 2014. http://www.unaids.org/sites/default/files/media_asset/UNAIDS_Gap_report_en.pdf.

