Healthy Aging: Optimizing Opportunities to Enhance Wellbeing and Quality of Life

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Cols

• Travel grants
• Speaker
• Advisor
• Research grants

Janssen, Roche, ViiV, Bristol-Myers Squibb, Merck Sharp & Dohme, Gilead, Mylan, Cipla, Novavax, Valneva, GSK, Pfizer, AZ, ATEA
Outline

• Ageing with HIV is common
• Literature rich of data
• Knowledge on diagnosis and management of comorbidities, frailty, etc has become key
• Models of care optimisation and collaboration with primary care
• My experience at CWHFT, London, UK
HIV pathogenesis: a model of accelerated immunosenescence

- Increased immune activation and long-term chronic inflammation major players in aging process in general
- These processes are more prevalent with HIV (even if controlled)
- People with HIV more prone to prematurely develop age-related conditions

Chauvin & Sauce, Clinical Science, 2022;136:61–80
Co-morbidities are prevalent among ageing people living with HIV

**AANCC incidence stratified by age in the AGEhIV Cohort Study, 2010–2012**

HIV-infected (N=540)

Mean AANCC/person = 1.3 (SD 1.14)

HIV-uninfected controls (N=524)

Mean AANCC/person = 1.0 (SD 0.96)

AANCC, age-associated non-communicable co-morbidities
Do patients with HIV age prematurely?

**PREMATURE AGEING**

- Increasing age, ageing process
- Drug toxicity e.g. TDF and Nephrotoxicity
- Persistent immune dysfunction inflammation
- Drug toxicity e.g. TDF and Nephrotoxicity
- Lifestyle (drugs, alcohol)

**Polypharmacy**

**Conditions**
- Cancer
- Bone disease
- Kidney disease
- Neurological Impairments
- Metabolic syndrome
- Liver disease
- CVD

**References**
1. Deeks et al. BMJ 2009
3. Nguyen et al. 18th IAC. Vienna, Austria 2010
6. Towner et al. JAIDS 2012
8. Wold et al. J Diabetes Metab Disord 2020
Polypharmacy

- Has been variously defined \( \geq 5 \)

- In research studies a commonly applied definition has been the concomitant use of five or more drugs

- Has been linked to heightened risk of occurrence of drug-related problems (toxicities and DDIs) and a detrimental health outcome
GEPPO: Duration of HIV Infection, multimorbidity, and polypharmacy

*3 or more noncommunicable diseases. †Chronic use of 5 or more medications.

Drug-drug interactions

- **Perpetrator**
  - HIV drug
  - Co-med

- **Victim**
  - Loss of efficacy

- **AEs**

DDIs potential to harm

- Multimorbidity
- Polypharmacy *
  - Recreational, OTC, CAM
  - Age Related PK & PD Changes

- Reduced efficacy of HIV agent
- Reduced efficacy of co-medications
- Adverse effect

*Different Health Care Providers – ‘Polydoctory’
TESTING 1

- N of drugs
- Type of drugs
  - Prescribed
  - OTC
  - Herbals
  - Recreational
  - Alcohol
- Drug interactions
Polypharmacy and evaluation of anticholinergic risk in a cohort of elderly people living with HIV.

Mazzitelli M¹,², Milinkovic A², Pereira B², Palmer J³, Tong T², Asboe D², Boffito M²,³.

Author information
1 "Magna Graecia University", Catanzaro, Italy.
2 Chelsea and Westminster Hospital NHS Foundation Trust, London, UK.
3 Imperial College London, London, UK.

Abstract: As a consequence of ageing, the number of prescribed medications for people living with HIV (PLWH) is increasing. Concomitant use of different drugs and their potential interactions may increase anticholinergic exposure and escalate the risk for side effects. We conducted an analysis in our cohort of PLWH over 50 years of age to evaluate the overall anticholinergic risk, as it is useful to identify, prevent, and manage increased side effect risks.
DDI and anticholinergic risk

- Increase in anticholinergic exposure > risk for side effects
- Overall anticholinergic risk to identify, prevent, and manage increased side effect risks

<table>
<thead>
<tr>
<th>Level of anticholinergic risk</th>
<th>Anticholinergic burden scale (n, %)</th>
<th>Anticholinergic risk score (n, %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (no risk)</td>
<td>697 (88.2)</td>
<td>711 (90)</td>
</tr>
<tr>
<td>1–2 (intermediate)</td>
<td>68 (8.6)</td>
<td>57 (7.2)</td>
</tr>
<tr>
<td>&gt;0 = 3 (high)</td>
<td>25 (3.2)</td>
<td>22 (2.8)</td>
</tr>
</tbody>
</table>
Frailty and the Effects of Polypharmacy in Older People Living with HIV

- Our findings, focusing mainly on PLWH over the age of 80 years, demonstrate that this population has significant comorbidities and is at risk of polypharmacy and DDIs.
- Modernization of ARVs (e.g., booster removal, pill burden reduction) and pharmacist interventions may help reduce adverse events, improve adherence, and modify ACB.
- Integrating geriatric care into HIV clinical practice presents an ideal opportunity to optimize resources to address the needs of OPLWH.
Fast-Track Cities 2023 • September 25-27, 2023

FAST-TRACK CITIES 2023

TESTING 2

Endocrinology MEN
- Hypogonadism
- CVD
- Functional decline (frailty)
- Osteoporosis
- etc...
- ED – Specialist clinic

Menopausal Clinic
WOMEN
- Menopause
- Depression
- Osteoporosis
- etc...

Appropriate Referral
TRANS/NON BINARY/OTHER
- Symptomatology
- Hormone levels
- Drug interactions
- etc...

Testosterone
Total and FREE
TESTING 3

• PSA

Prostate-specific antigen, protein produced by cells of the prostate gland
Blood test
Pro and cons

• Anal smear (when possible)

• Ensure mammography is done/planned
People with HIV are diagnosed with cancer at an earlier age than uninfected adults

Average age at cancer diagnosis for 516 HIV-positive individuals and uninfected individuals (SEER database), by cancer type, 2000–2007

- Anal/rectal SCC
- Non-Hodgkin lymphoma
- Liver
- Head and neck
- Lung
- Breast
- Prostate

p=0.0001 for all comparisons

TESTING 4

• Cardiovascular risk (CVR) calculation

• Coronary artery calcification score (CACS)
About you
Age (25-84): 64
Sex: ☐ Male ☐ Female
Ethnicity: ☐ White or not stated

UK postcode: leave blank if unknown
Postcode:

Clinical information
Smoking status: ☑ non-smoker
Diabetes status: ☑ none
Angina or heart attack in a 1st degree relative < 60? ☐
Chronic kidney disease (stage 4 or 5)? ☐
Atrial fibrillation? ☐
On blood pressure treatment? ☐
Rheumatoid arthritis? ☐
Leave blank if unknown

Cholesterol/HDL ratio:
Systolic blood pressure (mmHg):

Body mass index
Height (cm):
Weight (kg):
Reducing traditional CVD risk factors can decrease risk of CVD in older people

Effective treatment of modifiable risk factors can significantly reduce an individual’s CVD risk

Model for change in relative risk of CVD in a cohort of 24,323 HIV-positive individuals without prior CVD (D:A:D Study)

- Reducing blood pressure (BP) by 10 mmHg
- Reducing cholesterol by 1 mmol/L
- Smoking cessation

Relative risk of CVD

*Reduced by 1 mmol/L; †Reduced by 10 mmHg

BP, blood pressure; CVD, cardiovascular disease

Reducing traditional CVD risk factors can decrease risk of CVD in older people

Effective treatment of modifiable risk factors can significantly reduce an individual’s CVD risk

- Reducing systolic BP
- Reducing cholesterol
- Smoking cessation

Model for change in relative risk of CVD in a cohort of 24,323 HIV-positive individuals without prior CVD (D:A:D Study)

Lifestyle intervention: healthy diet and exercise

Involvement of metabolic clinic, physiotherapist and dietician

*Reduced by 1 mmol/L; †Reduced by 10 mmHg
BP, blood pressure; CVD, cardiovascular disease

CACS

Figure 1 Coronary artery calcium score (CACS) flowchart. TC = total cholesterol in mmol/L; LDL = low-density lipoprotein-cholesterol in mmol/L.
CACS

Figure 1: Coronary artery calcium score (CACS) flowchart. TC = total cholesterol in mmol/L; LDL = low-density lipoprotein-cholesterol in mmol/L.
Risk assessment / PLWH selection for statin therapy

**Conventional risk tools + CACS**

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**CVD assessment of PLWH > 50 (N=739)**

10-year CVD risk score
Coronary Artery Calcium (CAC) Score

- **FRS < 10% (N=322)**
  - CAC = 0 (N=177)
  - Underestimation of risk (N=33, 10.2% with CAC > 100)

- **FRS 10-19% (N=300)**
  - CAC = 0 (N=133)
  - Potential overestimation of risk (N=174, 23.5% with CAC = 0)

- **FRS ≥ 20% (N=117)**
  - CAC > 0 (N=76)

**Statin eligible (FRS ≥ 10%) (N=417, 56.4%)**

CAC measurement

- Reclassified to lower risk group
  - Statins reconsidered (N=174, 23.5%)

- Reclassified to higher risk group
  - Statins advised (N=145, 19.6%)
Pitavastatin to Prevent Cardiovascular Disease in HIV Infection

Steven K. Grinspoon, M.D., Kathleen V. Fitch, M.S.N., Markella V. Zanni, M.D., Carl J. Fichtenbaum, M.D.,
Trii Uambleja, M.S., Judith A. Aberg, M.D., Edgar T. Overton, M.D., Carlos D. Malvestutto, M.D., M.P.H.,
Gerald S. Bloomfield, M.D., M.P.H., Judith S. Currier, M.D., Esteban Martinez, M.D., Ph.D., Jhoanna C. Roa, M.D.,
Borek Foldyna, M.D., Sara E. Looby, Ph.D., Patrice Desvigne-Nickens, M.D., Beverly Alston-Smith, M.D.,
Jorge Leon-Cruz, M.S., Sara McCallum, M.P.H., Udo Hoffmann, M.D., M.P.H., Michael T. Lu, M.D., M.P.H.,
Heather J. Ribaudo, Ph.D., and Pamela S. Douglas, M.D., for the REPRIEVE Investigators*

• Participants with HIV who received pitavastatin had lower risk of a major adverse CV event than those who received placebo over a median follow-up of 5.1 years.
TESTING 5

- Bone mineral density (BMD) scan
- FRAX score
- Vitamin D
People living with HIV are at increased risk of low BMD and fractures

**Increased BMD issue risk from HIV infection**

Fracture prevalence PLWHIV and non-infected controls

- Male

Fracture prevalence/100 persons

<table>
<thead>
<tr>
<th>Age</th>
<th>Fracture prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–29</td>
<td>0.0</td>
</tr>
<tr>
<td>30–39</td>
<td>1.0</td>
</tr>
<tr>
<td>40–49</td>
<td>2.0</td>
</tr>
<tr>
<td>50–59</td>
<td>3.0</td>
</tr>
<tr>
<td>60–69</td>
<td>4.0</td>
</tr>
</tbody>
</table>

- Female

Fracture prevalence/100 persons

<table>
<thead>
<tr>
<th>Age</th>
<th>Fracture prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>30–39</td>
<td>1.0</td>
</tr>
<tr>
<td>40–49</td>
<td>2.0</td>
</tr>
<tr>
<td>50–59</td>
<td>3.0</td>
</tr>
<tr>
<td>60–69</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Hazard Ratio

- Male

HIV: 1.0, Non-HIV: 0.8

- Female

HIV: 1.0, Non-HIV: 0.8

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**Increased BMD issue risk from HIV treatment**


Hazard Ratio

- TDF: 1.0 ± 0.1
- ABC: 1.2 ± 0.2
- ZDV/D4T: 0.9 ± 0.1
- NNRTI: 1.1 ± 0.2
- rPI: 1.0 ± 0.1

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*U.S. healthcare system data

- PLWHIV have lower bone mineral density (BMD) than the uninfected population

- Prevalence of fractures of the spine, hip, and wrist, sites commonly associated with osteoporosis can be 60% higher in PLWHIV compared with the uninfected

- ARVs can exacerbate low BMD issues

- Initiation of therapy is associated with a 2–6% decrease in BMD over the first two years of treatment
## Bone Disease: Screening and Diagnosis

<table>
<thead>
<tr>
<th>Condition</th>
<th>Characteristics</th>
<th>Risk factors</th>
<th>Diagnostic tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteopenia</td>
<td>• Postmenopausal women and men aged ≥ 50 years with BMD T-score -1 to -2.5</td>
<td>Consider classic risk factors&lt;sup&gt;10&lt;/sup&gt;</td>
<td>DXA scan</td>
</tr>
<tr>
<td></td>
<td>• Premenopausal women and men aged &lt; 50 years with BMD T-score ≤ -2.5</td>
<td>Consider DXA in any person with ≥ 1 of&lt;sup&gt;10&lt;/sup&gt;</td>
<td>Rule out causes of secondary osteoporosis if BMD low&lt;sup&gt;10&lt;/sup&gt;</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>• Common in HIV</td>
<td>1. Postmenopausal women</td>
<td>Lateral spine X-rays (lumbar and thoracic) if low spine BMD, osteoporosis on DXA, or significant height loss or kyphosis develops. (DXA-based vertebral fracture assessment [VFA] can be used as an alternative to lateral spine X-ray).</td>
</tr>
<tr>
<td></td>
<td>• Up to 60% prevalence of osteopenia</td>
<td>2. Men ≥ 50 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Up to 10-15% prevalence of osteoporosis</td>
<td>3. History of low impact fracture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Aetiology multifactorial</td>
<td>4. High risk for falls&lt;sup&gt;10&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Loss of BMD observed with antiretroviral initiation</td>
<td>5. Clinical hypogonadism (symptomatic, see Sexual Dysfunction)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Greater loss of BMD with initiation of certain ARVs&lt;sup&gt;10&lt;/sup&gt;</td>
<td>6. Oral glucocorticoid use (minimum 5 mg/qid prednisone equivalent for &gt; 3 months)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preferably perform DXA in those with above risk factors prior to ART initiation. Assess effect of risk factors on fracture risk by including DXA results in the FRAX® score (<a href="http://www.shef.ac.uk/FRAX">www.shef.ac.uk/FRAX</a>)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>10</sup> Only use if > 40 years

<sup>10</sup> May underestimate risk in HIV-positive persons

<sup>10</sup> Consider using HIV as a cause of secondary osteoporosis
https://www.shef.ac.uk/FRAX/tool.jsp

OPTIMISE cART
REFER TO GP OR DAY UNIT FOR TREATMENT
TESTING 6

- HIV Associated Neurocognitive Disorder (HAND)
- SOCIAL SITUATION: combination of all social factors that come into play at any one time
- Isolation?

Are you concerned about your memory/concentration/cognition?
Has anybody around you expressed concern about your memory/concentration/cognition?
**PHQ9 and GAD7**

**Depression**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not all</th>
<th>at several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep, or sleeping too much</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead or of hurting yourself in some way</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

**Anxiety**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not all</th>
<th>at several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feeling nervous, anxious or on edge</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Not being able to stop or control worrying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Worrying too much about different things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Trouble relaxing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Being so restless that it is hard to sit still</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Becoming easily annoyed or irritable</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Feeling fidgety or restless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
The Everyday Memory Questionnaire-revised: development of a 13-item scale.

Royle J¹, Lincoln NB.

Abstract

PURPOSE: The Everyday Memory Questionnaire (EMQ) was developed as a subjective measure of memory failure in everyday life. Previous studies have investigated the factor structure of the EMQ in both healthy participants and people with multiple sclerosis (MS). The aim of the present study was to confirm the factor structure of the EMQ, to determine the internal consistency and criterion validity of the scale and to develop a shortened version.

METHOD: A retrospective design, including participants from a study on MS patients and their carers and a study on stroke patients. Psychometric properties of the EMQ-28 were explored, and the measure was further revised from comparative analyses between the clinical and non-clinical groups.

RESULTS: Reliability and factor analysis of the EMQ-28 identified two main factors, general memory and attentional function, showing some concordance with previous research. Further analysis reduced the questionnaire to a 13-item measure (EMQ-R), with two main factors (Retrieval and Attentional tracking), strong internal reliability, and good discriminatory properties between clinical and control groups.

CONCLUSIONS: The 28-item questionnaire consistently differentiated between two broad systems of memory and attention, with some differentiation of visual and verbal, or language systems. Results showed some consistency with previous findings. The revised, 13-item questionnaire is a valid and reliable tool that has good face validity for use with neurological patients. Further exploration of the revised EMQ is recommended to provide information regarding its psychometric and clinical properties.
EMQ

Psychology/Neuropsychometric testing

HIV/Neurology clinic
Specialist clinics

1. Renal
2. Cardiology
3. Metabolic
4. Women & menopause
5. Neurology
6. Mental health
7. Erectile Dysfunction & Psychosexual
8. Complex Patients MDT
9. Care of Elderly/HIV
10. Drug
11. Ante-natal & Post-natal
12. National Cancer/HIV Centre – Prof M Bower

Results of a Multi-Disciplinary Approach Involving Geriatricians of a Clinic for Older People Living with HIV

Aylin Cansu Ates 1, Andrei Bachnak 1, Yana Murateva 1, Yarden Toiber Kent 1, Sophie Blackburn 2, Marta Boffito 1 2, Ana Milinkovic 1 2, Tim Tong 2, Maithili Varadarajan 2

- Multi-morbidity 75.4%, polypharmacy was 46.6%
- Highest prevalence obesity (60.9%), musculoskeletal disorders (59.4%), and cardiovascular diseases (56.5%)
- Average of 16 hospital encounters in 2 years before latest PLUS50 clinic visit
- Most visited medical specialties:
  - endocrinology/metabolic (11.0%)
  - gastroenterology (9.4%)
  - orthopedics (8.0%)
  - psychiatry (7.5%)
Specialist clinics

1. Renal
2. Cardiology
3. Metabolic
4. Women & menopause
5. Neurology
6. Mental health
7. Erectile Dysfunction & Psychosexual
8. Complex Patients MDT
9. Care of Elderly/HIV
10. Drug
11. Ante-natal & Post-natal
12. National Cancer/HIV Centre – Prof M Bower

Metabolic Clinic

- Live well pathway, lipids, weight, dietician support, exercise, physiotherapy, bone health
Peer Support

<table>
<thead>
<tr>
<th>Peer support by clinic</th>
<th>Mon</th>
<th>Tues</th>
<th>Wed</th>
<th>Thur</th>
<th>Fri</th>
<th>Sat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kobler In-clinic F2F</td>
<td></td>
<td>Chris 1:30 - 5pm</td>
<td></td>
<td>Anthony 10 - 5pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Mids In-clinic F2F</td>
<td></td>
<td></td>
<td>Chris 4 - 7pm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>56DS Remote only</td>
<td></td>
<td></td>
<td></td>
<td>David 1 - 5pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10HB In-clinic F2F</td>
<td></td>
<td></td>
<td></td>
<td>David 1 - 5pm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote clinics Phone / video</td>
<td>Anthony 10 - 5pm</td>
<td>Chris 7 - 9pm</td>
<td>Chris 11 - 3pm</td>
<td>Chris 10 - 12pm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

July 2020 – Nov 2022

- 287 people (66% of referrals) engaged with peer-support
- Median age 45 years (range 16-74)
- 13% were female, 47% BAME vs 34.5% in the CWHFT HIV cohort
- Virtual appointments moved from 100% to 50% over time
- Rates of having a VL<50 increased from 71% at referral to 90% following peer-support, including new diagnoses.

Herts peer support clinics being set up following THT contract completion

PLUS – QI grant to focus on ED testing and women

Connect to Care

An HIV Peer Pilot Project supporting lost to follow up, delivery in partnership by Chelsea and Westminster Hospital and Sophia Forum.
Conclusions

• This was our experience of an OVER50 clinic and more dedicated to people with HIV in London, UK

• The clinic undergoes regular, audits, service evaluations, patient feedbacks, publications

• We are training staff to run “the clinic” in all people with HIV>50 years and focus on specialist clinics… and refer to the specialist clinics mentioned

• We are optimizing geriatric / HIV care…

A dedicated clinic for HIV-positive individuals over 50 years of age: a multidisciplinary experience

L. Waters 1, B. Patterson, A. Scourfield, A. Hughes, S. de Silva, B. Gazzard, S. Barton, D. Asboe, A. Pozniak, M. Boffito

Evaluation of a Clinic Dedicated to People Aging with HIV at Chelsea and Westminster Hospital: Results of a 10-Year Experience

Branca Pereira 1, 2, Maria Mazzitelli 1, 3, Ana Milinkovic 3, Christina Casley 1, Javier Rubio 1, Rachel Channa 3, Nicolò Girometti 3, David Asboe 1, Anton Pozniak 3, Marta Boffito 1, 2