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The Right Time

a guide to caring for those ageing with HIV

JUSTRI is a UK-based not-for-profit organisation, dedicated to providing resources and education for those with and working with HIV, viral hepatitis and tuberculosis. See our work at **www.justri.org**

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Additional information related to HIV and ageing is available at: **www.natap.org**; **www.aidsmap.com**; **www.i-base.info** and **www.hiv-druginteractions.org**

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The Right Time

Introduction

Welcome to the first edition of this JUSTRI guide for healthcare professionals (HCPs) caring for people ageing with human immunodeficiency virus (HIV) infection (PAWH).

In the past, HIV disease, leading to acquired immunodeficiency syndrome (AIDS) and death, meant that reaching conventional old age seemed unlikely. However, effective antiretroviral therapy (ART), which adequately controls HIV infection, and other medical advances have changed all that.

Increased life expectancy for PAWH is shifting the focus in monitoring, treatment and care to accommodate the overlap between age-related conditions and illness due to HIV, its complications and the side-effects and interactions between antiretroviral drugs and other therapeutic agents.

The aim of this guide is to highlight the challenges of caring for PAWH and to provide practical advice for HCPs who treat HIV and those who work in Elderly Medicine. It has been compiled by HCPs from both disciplines with guidance and advice from other HCPs and PAWH.

How to Use This Guide

We hope that this guide will help you, who are treating and caring for PAWH, to have a clearer understanding of the issues, and that by sharing the information with your medical and other professional colleagues that the quality of care for PAWH will improve.

Knowledge of and communication between all parties, including the patient, are the keys to success in this venture and we hope this resource helps.

After this introduction, the guide is divided into two main sections. The first is aimed at those who treat and care for elderly patients, but who may have limited knowledge of HIV and its treatment. The second is designed for HIV HCPs to understand the assessment, investigation and management of the elderly patient.

Ageing with HIV is a new and dynamic field of constantly evolving information, so we haven't referenced specific scientific findings in the text. However, there are many online sources in the Web Links section that provide a wealth of information about advances in these fields. As with all printed information please check for up-dates to the guide, especially if reading this after December 2020; the latest version will always be online at **www.justri.org**.

We welcome comments, corrections and ideas or suggestions for inclusion in future editions; please send them to **home@justri.org**.

HIV and Ageing

The ageing process in patients with HIV infection, whether on long-term ART or not, is still poorly understood and much research is underway.

Many abnormalities of the immune system associated with HIV infection are also those observed in ageing, these include: low CD4 count, high rates of immune activation, reduced activity of the thymus and shorter telomeres. In addition, another ageing process, oxidative stress, appears to promote HIV replication.

This and other evidence suggests that duration of HIV infection, especially if untreated, is associated with some age-related co-morbidities/geriatric syndromes and that monitoring and interventions for these in PAWH might need to begin at an earlier age.

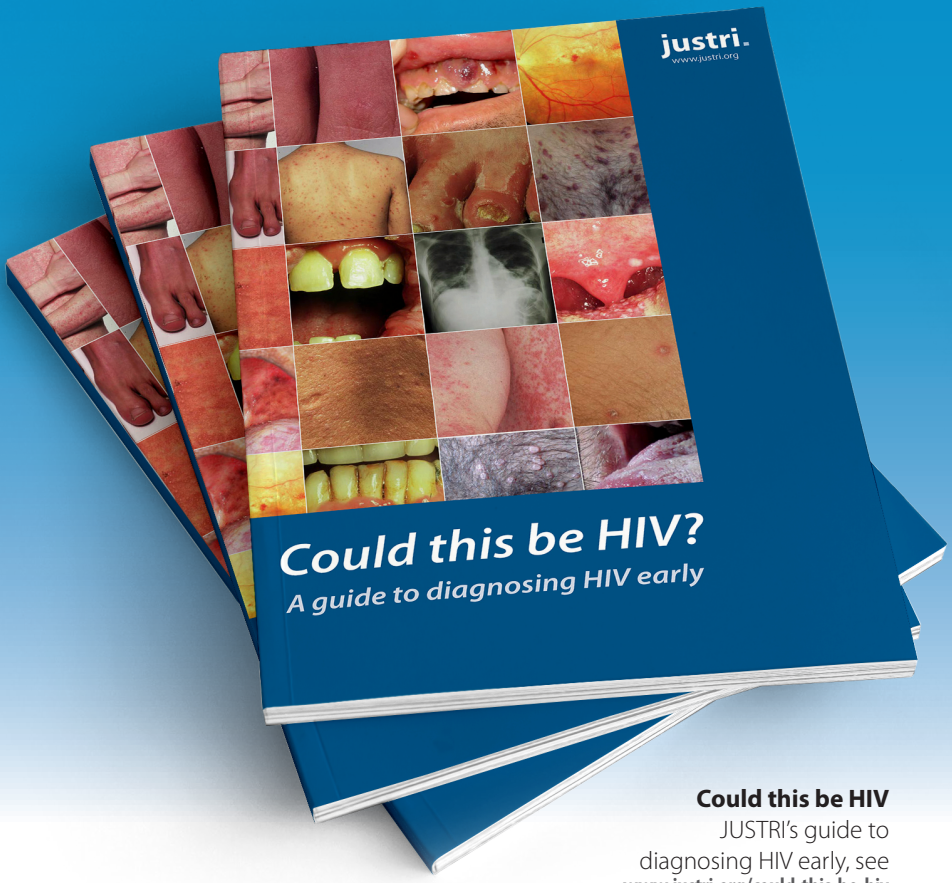
There is a clear difference between chronological age (number of years lived) and biological age, with individuals ageing at different rates depending on life, health and social factors. HIV may impact biologic age in various ways, through:

- Age at diagnosis - vertical transmission or HIV diagnosed at an older age being worse than infection in young adulthood
- Length of diagnosis - diagnosis pre-1996 with very few treatment options and less knowledge about HIV and associated conditions being much worse than in the period after effective ART became available
- Severity and cumulative numbers of AIDS events and co-morbidities from time of infection
- Duration of immune suppression prior to treatment and level of immune reconstitution achieved on ART
- Number and cumulative toxicity of antiretrovirals (ARVs) - older drugs being more toxic and less tolerable than newer ones

Long-term use of ART has meant that AIDS-related conditions now rarely develop when HIV is suppressed and adequate improvement occurs in CD4+ cell counts. However, the consequent increase in life expectancy has led to age-related co-morbidities becoming commoner. These include: liver disease; cardiovascular disease (CVD); kidney disease; non-AIDS cancers; osteoporosis; neurocognitive decline and frailty, all of which may be exacerbated by the chronic immune activation that remains in effectively treated HIV patients.

HIV disease has been transformed into a complex chronic disease associated with multiple conditions, affecting many body systems and requiring the expertise of a wide range of healthcare specialists. In the older patient with HIV, care should focus on the individual and their risk of illness, loss of function

or quality of life from the spectrum of conditions they have or are likely to develop, i.e. treat them holistically. It is prudent to be cautious about the effects of HIV on ageing over an entire life span, since longitudinal data are still being generated. However, we should be optimistic that no matter how old you are and living with HIV, preparing for older age is no bad thing.



Could this be HIV
JUSTRI's guide to diagnosing HIV early, see
www.justri.org/could-this-be-hiv

Diagnosing HIV in the Elderly

UK surveillance data shows that the proportion of people aged over 50 accessing HIV care increased from 1 in 10 in 1999 to more than 1 in 3 in 2017, and in the US data the proportion is around 50%.

At least part of the increase in HIV in the over 50s is driven by new infections, with a high proportion presenting late. HIV infection and associated diseases need to be considered as possible diagnoses by all who provide care for older people, as under- or mis-diagnosis of HIV is frequent. Factors associated with late or missed diagnosis in older people include a lack of routine HIV screening in this age group and poor awareness of HIV risk factors. Also, failure of HCPs in many settings to consider HIV infection in older individuals and the confusion between HIV-specific or opportunistic infection (OI) symptoms and signs with those of other conditions frequently seen at older age (e.g. weight loss, recurrent chest infections, dementia or chronic diarrhoea, etc.).

Complete sexual histories are often not routinely obtained from older patients because of HCPs unease about discussing sex and sexual orientation, or not recognizing that continued sexual activity at older age is normal.

In addition, older patients may not be comfortable with disclosing information that they feel they should be discrete about. HIV should be considered in all older persons, even if they report being monogamous.

A simple guide to HIV testing and indicator conditions can be found at **www.justri.org/could-this-be-hiv/**.

Outside of the classic affected groups of men-who-have-sex-with men (MSM) or those from countries of high prevalence, other individuals, particularly heterosexual women may not have family or social networks knowledgeable about HIV. Many general practitioners (GPs) or geriatricians would not think to offer an HIV test to the nice elderly white lady who presents with recurrent chest infections.

Care Models for the Elderly with HIV and Stigma

Care for HIV has never been based in primary care and ART prescribing is restricted to hospitals. This presents challenges in creating the best model of care for those ageing with HIV, since most care of the elderly takes place in the community.

POTENTIAL CARE MODELS FOR PAWH INCLUDE:

1. **Dedicated specialist clinics embedded within existing HIV services**

- Including joint clinics with ageing and frailty services
- May include dedicated GP/primary care physicians within HIV services
- Could have detailed annual assessments to take note of heightened risks

2. **Rapid and direct access to specialist services from HIV**

- Including 'elderly care' based on need rather than age

3. **Shared care with GP/primary care physicians in the community**

- With development of bespoke screening criteria and supported by improved education and training

Models may need to be tailored to the complexity of the underlying HIV disease, i.e. those with multiple AIDS diagnoses, exposed to more toxic ART in the past and with longer prior periods of detectable virus, having significantly more co-morbidities and complex needs.

For all PAWH, whilst their HIV clinician may not be able to provide all aspects of care, each patient should have a HCP responsible for their care coordination, whether it be their HIV clinician, elderly medicine physician (EMP) or GP. Establishing this is important as attending multiple appointments and taking many medicines may become particularly confusing with age and increasing co-morbidities. One attempt to co-ordinate care for PAWH is the JUSTRI Patient Passport; see **www.justripatientpassport.com**.

SOCIAL AND END OF LIFE CARE

Recent UK research has suggested that PAWH have low faith in their GPs to manage their ageing and have fears about future care and institutional preparedness to deal with HIV. Other concerns are the issues around sexuality, for MSM, stigma from HCPs and loss of control and complexity of their care as they age. Currently, there is perhaps a low level about HIV and ageing in EMPs and this risks alienating those being referred into services designed and branded for much older adults (i.e. the needs of PAWH may not yet be fully appreciated).

PAWH may be now receiving care and support earlier than they had anticipated and might also be caring for others, such as partners. Their support networks could be strained, as often they are friend related rather than overtly family based due to disclosure issues and/or stigma. These networks may be vulnerable to collapse with age, leading to social isolation and perhaps earlier need for formal care provision.

With an ageing population of people living with HIV, the coming years will see a rising need for residential support patients as their dependency increases and/or at the end of life. HCPs caring for older patients must establish individualized care and support plans that address personal goals, optimisation plans, escalation and emergency plans as well as advance care plans, to ensure the best standards of care are achieved. Access to long-term social and nursing care may be more difficult for PAWH, due to stigma and their need for it at a younger than usual age.

The streamlining of HIV care in the UK may also have an unintended effect of undermining or even silencing historical and continuing discussion on the social and psychological effects of HIV infection. HIV, despite ART, remains a socially pathologised and stigmatising condition and this continues to hinder prevention, treatment, care and support. Stigma due to the association of HIV with drug use and homosexuality may lead PAWH to hide risk factors, or their diagnosis, from providers or families, even until the end of their life.

HIV and Ageing Research

Ageing, in general, is a hot topic; slowing it, halting it or even reversing it is the Holy Grail for many researchers and health professionals.

Although current research has described many age-related issues in people with HIV infection and suggested some reasons why they occur, there are significant gaps in our knowledge that must be filled with carefully designed studies. Many questions remained to be answered for PAWH - examples include:

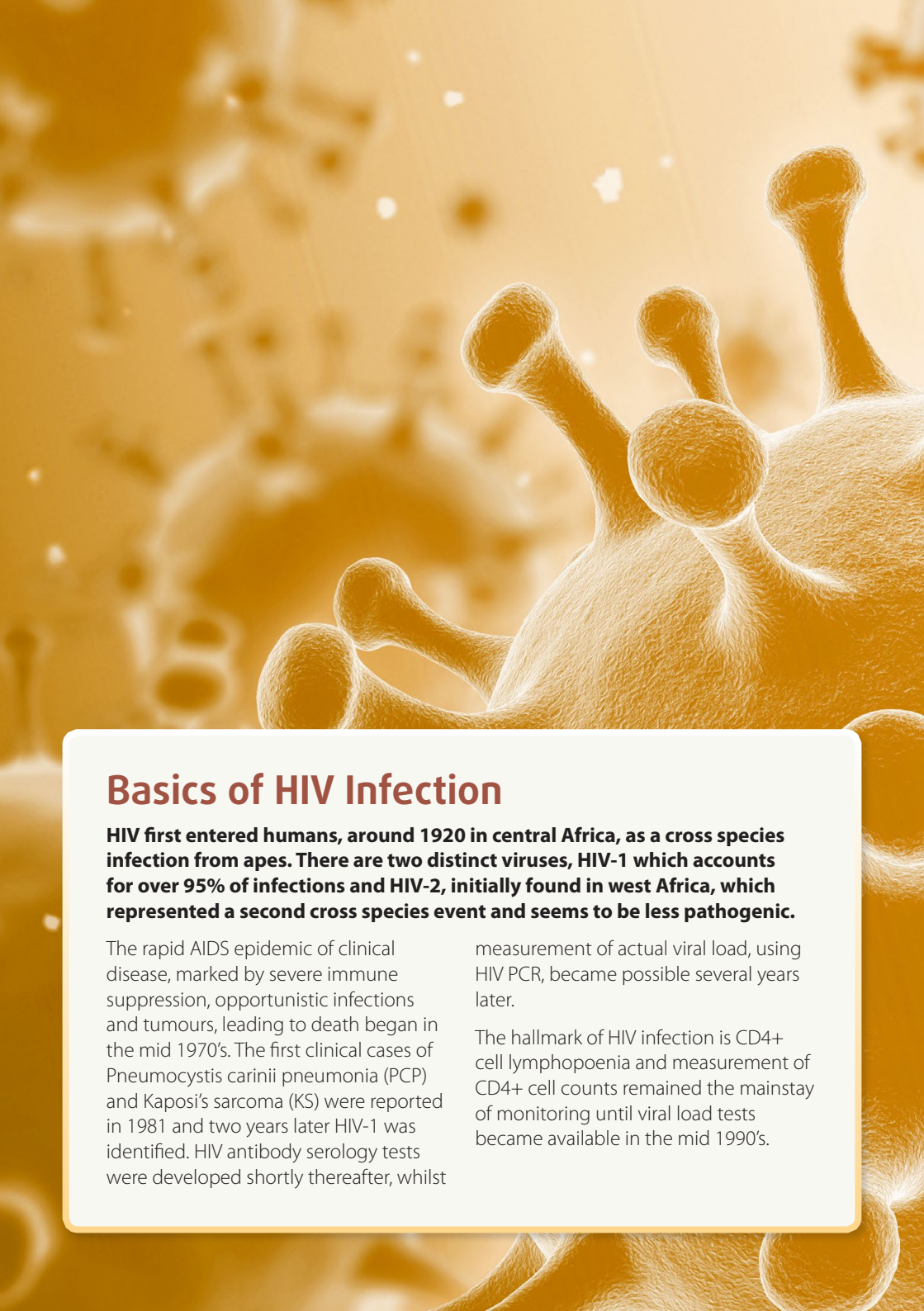
- What are the risk factors for HIV transmission in older people? How can testing be targeted effectively in this age group?
- Exactly how much extra risk of co-morbidities in ageing do HIV and ART confer? ART and HIV both increase cardiovascular disease, but what is the balance?

Older individuals are frequently excluded from clinical trials, as are those with significant medical problems. Trials specifically designed to address age-related issues are urgently needed and service-based research is crucial to determine safe and effective ways to manage those ageing with HIV. Studies to investigate quality of care, patient satisfaction and cost-benefit should also guide future developments in care provision for PAWH.

It is only through carefully designed and executed research will we be able to answer the many questions that exist on how best to treat and care for those ageing with HIV.

SECTION TWO

HIV for Elderly Care Specialists



Basics of HIV Infection

HIV first entered humans, around 1920 in central Africa, as a cross species infection from apes. There are two distinct viruses, HIV-1 which accounts for over 95% of infections and HIV-2, initially found in west Africa, which represented a second cross species event and seems to be less pathogenic.

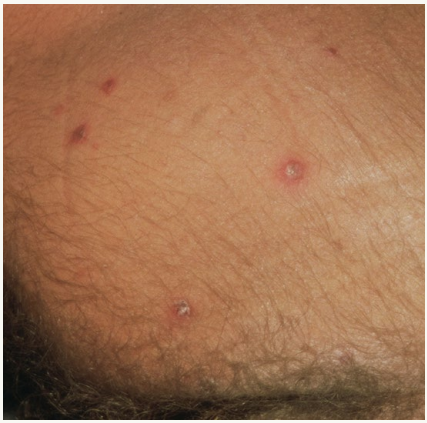
The rapid AIDS epidemic of clinical disease, marked by severe immune suppression, opportunistic infections and tumours, leading to death began in the mid 1970's. The first clinical cases of Pneumocystis carinii pneumonia (PCP) and Kaposi's sarcoma (KS) were reported in 1981 and two years later HIV-1 was identified. HIV antibody serology tests were developed shortly thereafter, whilst measurement of actual viral load, using HIV PCR, became possible several years later.

The hallmark of HIV infection is CD4+ cell lymphopoenia and measurement of CD4+ cell counts remained the mainstay of monitoring until viral load tests became available in the mid 1990's.

The three stages of HIV infection

1 Acute HIV Infection (Seroconversion)

Seroconversion illness generally develops within 2 to 4 weeks after HIV infection. During this period, some individuals have flu-like symptoms, such as fever, headache and sore throat whilst others have no symptoms. They may develop swollen lymph nodes and /or a rash; a small proportion exhibit neurological conditions. At this stage, blood HIV levels are very high greatly increasing the risk of onward HIV transmission.

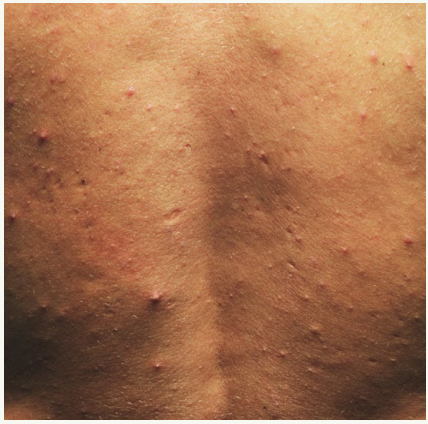


Seroconversion rash

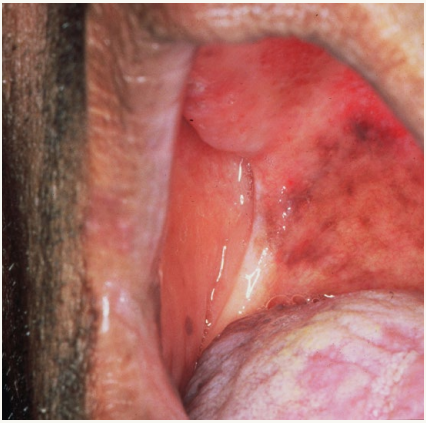
2 Chronic HIV Infection

During this, individuals may have no HIV-related symptoms, but until treated most remain infectious.

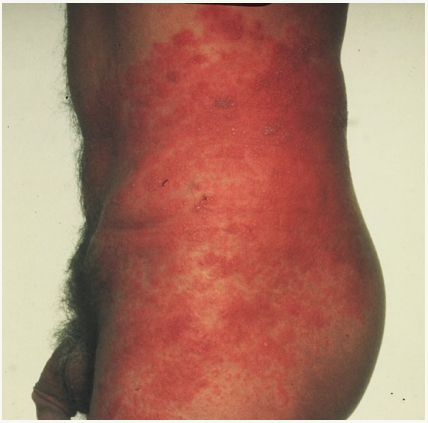
Without ART chronic HIV disease usually advances to AIDS in 10 years, although in some people progression is faster. As immunity declines, common HIV related conditions, such as oral candida, herpes zoster, folliculitis and fungal infections may develop and these conditions should prompt an HIV test in all older individuals.



Folliculitis



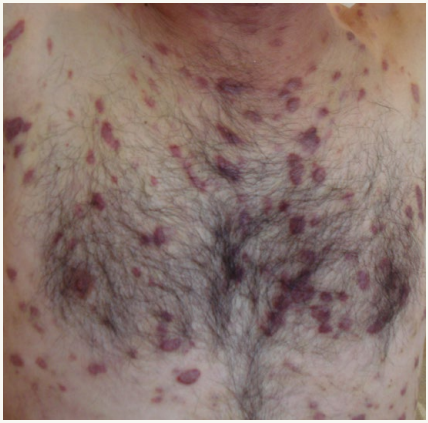
Oral Candida



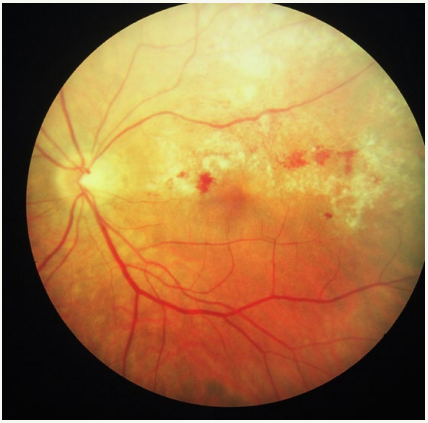
Herpes Zoster

3 AIDS

AIDS is the final, most severe stage of HIV infection and is diagnosed at a CD4 count of <200 cells/mm^3 or when certain opportunistic infections and tumours occur. Without ART, people with AIDS survive about 3 years.



Kaposi's sarcoma



CMV retinitis

After HIV infection, an initial spike of viraemia triggers a partially effective immune response, which then wanes over time at a rate dependent on the level (or set-point) of virus during the latent (chronic) period *[Figure 1]*.

It is a simple balance between the level of virus and the speed of CD4+ cell decline. If the HIV RNA is <10,000 copies/mL the progression of disease is slow, whilst if >100,000 copies/mL progression is much faster.

CD4+ cell counts correlate, although somewhat imprecisely, with HIV-related clinical disease. Between 500 and 200 cells/mm^3 these events become commoner and more severe, with serious AIDS events predominantly occurring once the count falls below 200 cells/mm^3.

However, if successful suppressive ART is given and adhered to by the individual, then viral load drops to undetectable, the CD4 count rises, clinical remission occurs and to all intents and purposes the patient is no longer infectious.

The next section deals with HIV therapy, how it is used and what are the important side effects of each drug and potential drug-drug interactions with other medicines.

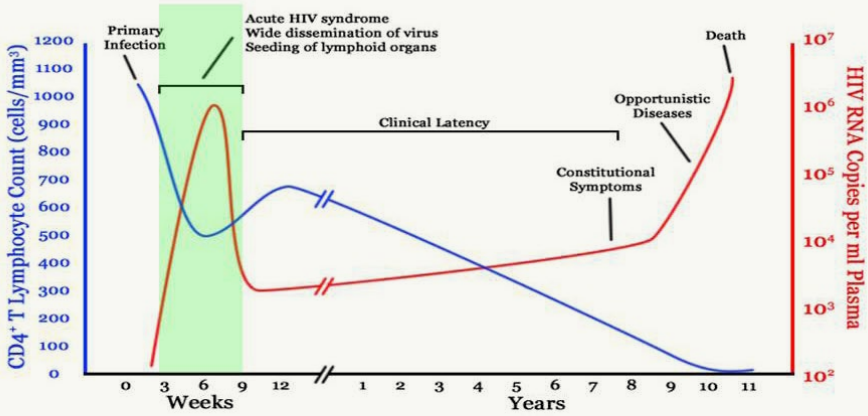


Figure 1. Stages of HIV infection

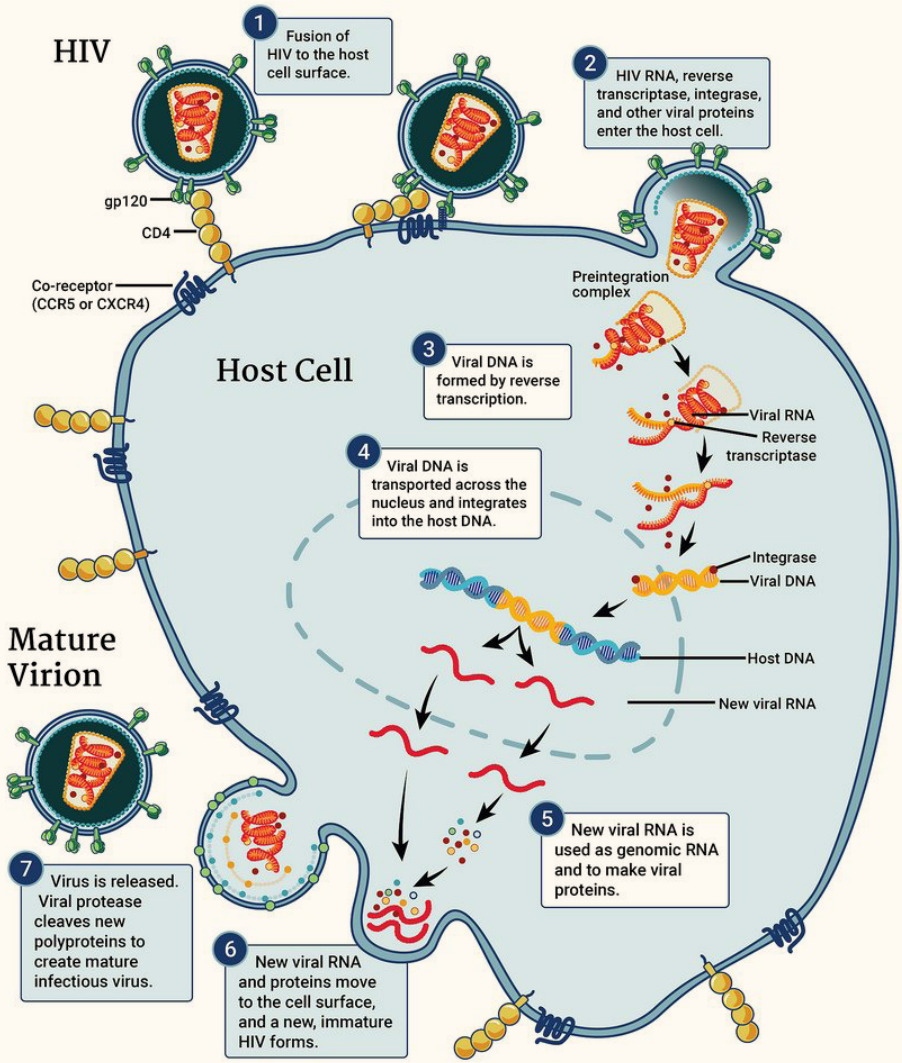


Figure 2. Life cycle of HIV within a cell

HIV Treatment - a Simple Guide

Since the first antiretroviral - zidovudine (AZT) - was given in 1986, the HIV therapy landscape has been transformed by an ever-increasing range of agents.

There are now 5 classes of drugs, acting at various stages of the HIV life cycle in the cell *[Figure 2]*; they include over thirty currently used agents, many combined into single tablet formulations. Most regimens consist of three drug combinations, however, two drug regimens are increasingly common, while some patients with complex resistance patterns will be taking more antiretrovirals.

Nowadays, all people diagnosed with HIV are rapidly started on ART, although therapy may be temporarily delayed with certain opportunistic infections to reduce the risk of immune reconstitution syndromes.

Once a patient is established on ARV therapy, their viral load declines to undetectable levels (usually less than 20, 40 or 50 copies/mL, depending on the assay used) and the CD4 count will rise, so they are less likely to develop serious HIV related conditions.

In most settings, over 90% of individuals on treatment will have an undetectable viral load, which is maintained if they are adherent to the ARVs; very few newly treated individuals will now fail therapy. Consequently, now most changes to treatment are made to reduce or avoid toxicity, to minimise drug-drug interactions or to simplify the regimen.

Table 1 **Antiretroviral drugs: an overview**

Single Agent Antiretrovirals

1	Entry Inhibitors
1A	**Fusion Inhibitor**
Enfuvirtide [Fuzeon, T20]	Rarely used now, T20 is an injectable ARV that prevents HIV binding with the CD4 receptor. Main side effect of T20 is injection site reactions; can be treatment limiting. Given via subcutaneous injection at a dose of 90mg bid.
1B	**CCR5 Entry Inhibitor**
Maraviroc [Celsentri, MVC]	MVC blocks the CCR5 co-receptor that facilitates viral entry into cells and is only active against CCR5-using ('CCR5 tropic') virus. HIV can be of several strains, using CCR5 (R5) receptors only, CXCR4 (X4) receptors only, be 'mixed' (using R5 or X4) or be 'dual' (able to use both). So, before using MVC a tropism blood test must be performed. Main side effect of MVC is hypotension but this is uncommon. Depending on the other ARVs given, dosed at 150/300/600mg od or bid.

2	Reverse Transcriptase Inhibitors
2A	**Nucleoside Reverse Transcriptase Inhibitors [NRTIs]**
Lamivudine [Epivir, 3TC]	One of the most commonly used ARVs, 3TC is also active against hepatitis B virus (HBV). Generally, well tolerated, an uncommon side effect is peripheral neuropathy (PN). It is dosed at 300mg od or 150mg bid.
Abacavir [Ziagen, ABC]	Usually co-formulated with 3TC as Kivexa (see below). Can cause a hypersensitivity reaction (HSR) in susceptible individuals and genetic testing for the HLAB5701 allele is recommended before use of this medicine. HLAB5701 positivity implies a higher risk of HSR and ABC should not be given. Common side effects of ABC include nausea and headache, some choose to avoid the drug over concerns about cardiovascular risk. Single agent dosed at 600mg od or 300mg bid.
Emtricitabine [Emtriva, FTC]	Although not entirely the same, this NRTI is clinically comparable to 3TC and usually combined with tenofovir as Truvada or Descovy (see below). Generally, well tolerated, uncommon side effects include PN and skin pigmentation. Single agent dosed at 200mg od.
Tenofovir	This ARV is widely used and is active against both HIV and HBV and is the main antiviral used to treat the latter. Available in two molecular forms:
▪ **Tenofovir Disoproxil Fumarate [Viread, TDF]**	Usually co-formulated with FTC as Truvada (see below). Side effects are renal (proximal tubulopathy and rarely Fanconi's syndrome) and loss of bone mineral density (BMD). In practice serious toxicity to TDF occurs uncommonly. Single agent dosed at 245mg od.
▪ **Tenofovir Alafenamide [TAF]**	Only available co-formulated with FTC as Descovy (see below), it appears to have less renal and bone toxicity than TDF. It is dosed at 10mg od with ARV regimens containing ritonavir or cobicistat and 25mg od with all others.
Zidovudine [Retrovir, AZT]	This ARV is now is rarely used due to significant toxicity (anaemia, nausea and body shape changes). It may be used for specific reasons (e.g. pregnancy, ART resistance or central nervous system penetration). It is dosed at 250mg bid.
Stavudine [Zerit, D4T] **Didanosine [Videx, DDI]**	These are two older NRTIs, which should not now be used due to adverse events, including severe PN and liver damage.

Table 1 **Antiretroviral drugs** *(Single Agent Antiretrovirals continued)*

2B	Non-Nucleoside Reverse Transcriptase Inhibitors [NNRTIs]
Efavirenz [Sustiva, EFV]	Whilst effective, EFV has many side effects including rash (occasionally Stevens-Johnson syndrome), mood change, psychosis, cognitive problems, sleep disturbance (insomnia, abnormal dreams), dizziness and nausea. Most of these are short-lived but may persist in a significant proportion of users, especially PAWH. Some effects may be subclinical with improvement in those that stop the drug. It is dosed at 600mg od.
Nevirapine [Viramune, NVP]	NVP is effective but has potentially serious toxicities within the first few weeks of use. These include toxic epidermal necrolysis and fulminant hepatic failure, commoner in those of African heritage, in women especially when pregnant. Once people are stable on NVP it is very well tolerated. For this reason, stable patients on NVP are not usually switched, but it is not used for new patients. It is dosed at 200mg bid or 400mg od as an extended release formulation.
Rilpivirine [Edurant, RPV]	RPV is generally well-tolerated. Rash and mood disturbance are reported less commonly than with EFV but still occur. It is dosed at 25mg od and **must** be taken with food.
Etravirine [Intelence, ETV]	ETV is active against most NNRTI resistant viruses. Although generally well tolerated, it has a chalky formulation which many find unpalatable and its use is uncommon. It is dosed at 200mg bid, although often given as 400mg od.
3	**Integrase Strand Transfer Inhibitors [INSTIs]**
Raltegravir [Isentress, RAL]	RAL is a well-tolerated drug, although moderate transaminitis has been seen when initiating and mood and sleep disorders do occur. It is dosed at 400mg bid (original formulation), or now more commonly in a newer formulation at 1200mg od (as two 600mg tablets).
Elvitegravir [EVG]	EVG is not available as a stand-alone agent and is only given in co-formulated single tablet regimens with a boosting agent (see below).
Dolutegravir [Tivicay, DTG]	DTG is a potent INSTI and is generally well tolerated, although it may cause sleep disturbance, headache and nausea. Mood disturbance and neuropsychiatric side effects occur in a minority of users of DTG. It is also co-formulated with ABC and 3TC, as Triumeq (see below). Single agent dosed at 50mg od (50mg bid in those with INSTI resistance).
Bictegravir [BIC]	BIC is not available as a stand-alone agent but only co-formulated with Descovy as a single tablet regimen (see below).

Table 1 **Antiretroviral drugs** *(Single Agent Antiretrovirals continued)*

4	Protease Inhibitors [PIs]
Boosting agents	Protease inhibitors are mostly co-formulated with a low-dose boosting agent which blocks cytochrome p450 and thus allows a smaller dose of the treatment PI to be given. Note that all boosted PIs increase serum lipid levels to a varying degree and by association may alter cardiovascular risk. There are two available boosting agents:
Ritonavir [Norvir, RTV]	Well tolerated but can cause diarrhoea and nausea. It is dosed, as a booster, either as 100mg od or 100mg bid (depending on the PI) and is depicted as '/r'
Cobicistat [Tybost, cobi]	Cobi is not independently active against HIV and has a side effect profile that is like RTV. It is dosed at 150mg od or bid and it is depicted as '/c'.
Atazanavir [Reyataz, ATZ]	ATZ is usually well tolerated, but leads in most people to a clinically insignificant unconjugated hyperbilirubinemia. This can present as jaundice of the skin and sclera, which can distress the patient and unnecessarily concern the non-HIV clinician. More seriously, but less common, are kidney stones, gall stones and sludge in the gall bladder, all due to crystals of drug. It is dosed at 300mg od boosted with either 100mg RTV od (separate tablets) or cobi (150mg co-formulated, see below). ATZ may also be given unboosted (less common) at 400mg once daily.
Darunavir [Prezista, DRV]	DRV is a potent and generally well-tolerated PI. It is sulphonamide based and thus rash can be a problem, especially if sulphonamide allergy is known, when it is contraindicated; it also causes diarrhoea and weight gain in some individuals. It is dosed at 800mg od or 600mg bid twice daily (boosted with either RTV (100mg, separate tablet with each dose) or cobi (150mg co-formulated, see below).
Lopinavir/ritonavir [Kaletra, LPV/r] **Fosamprenavir/ritonavir [Telzir, FPV/r]** **Saquinavir/ritonavir [Invirase, SQV/r]** **Tipranavir/ritonavir [Aptivus, TPV/r]**	These are older PIs now used less commonly. All cause diarrhoea and hyperlipidaemia as their main side-effects.

Table 1 **Antiretroviral drugs** *(Single Agent Antiretrovirals continued)*

Co-formulation

1 Single Tablet Regimens (STRs)

These comprise whole ARV regimens. Side effects are predictable by looking at the individual components listed above.

Atripla: EFV/TDF/FTC

Odefsey: RPV/FTC/TAF

Eviplera: RPV/TDF/FTC

Genvoya: EVG/c/TAF/FTC

Stribild: EVG/c/TDF/FTC

Triumeq: DTG/ABC/3TC

Symtuza: DRV/c/TAF/FTC

Juluca: DTG/RPV
(switch patients only; not first line therapy)

Biktarvy: BIC/TAF/FTC

2 Fixed Dose Combinations (FDCs)

These are generally given with other ARVs. Side effects are predictable by looking at the individual components listed above. All are dosed od except the rarely used Combivir and Trizivir which are given bid.

NRTIs	PI
Truvada: TDF/FTC	**Evotaz:** ATZ/c
Kivexa: ABC/3TC	**Rezolsta:** DRV/c
Descovy: TAF/FTC	
Combivir: AZT/3TC	
Trizivir: AZT/3TC/ABC	

Table 1 **Antiretroviral drugs** *(Co-formulation)*

Polypharmacy and Drug Interactions

Polypharmacy in HIV and ageing is a significant problem. So, it is vital to not just blindly treat each condition associated with HIV and ageing without considering the problems that might arise from drug-drug interactions, or toxicity driven by the changes in metabolism of individual drugs due to ageing.

Constant clear communication between all HCPs about what individual PAWH are being prescribed, and why, is very important, as changes may occur frequently and increase the risk of drug drug interactions (DDIs), a major reason morbidity and hospital admission.

Regular checks with PAWH of all medications, what each one is for and how to take them are important and should be undertaken by all HCPs, if possible HIV pharmacists. This ensures correct dosing, which may reduce possible side effects and avoid potential drug-drug interactions.

IMPORTANT HIV DRUG-DRUG INTERACTIONS (DDIs)

Whilst no HIV drug class is entirely without significant DDIs, the most important ones occur with cobicistat or ritonavir boosted drugs, i.e. boosted protease inhibitors and elvitegravir (Stribild, Genvoya), as well as some NNRTI's.

Common medications that interact with some antiretrovirals include certain statins, prescribed drugs and over the counter medicines that reduce stomach acid, warfarin and direct oral anticoagulants (DOACs), and many steroid preparations such as nasal sprays *[Table 2]*. It's very important to check potential interactions before prescribing these agents.

The main source of up to date information on HIV drug interactions is the Liverpool University HIV drug interactions website, www.hiv-druginteractions.org. It is simple to use, on-line or as an app, and is a vital tool in the monitoring drug therapy in PAWH.

Table 2 **Commonest potential serious drug-drug interactions with ARVs**

Drug	*Boosted PIs, Stribild, Genvoya*	*NNRTIs*	*Unboosted INSTIs*
Corticosteroids			
Prednisolone and methylprednisolone	Levels increased	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Fluticasone, triamcinolone and mometasone	Contraindicated	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Dexamethasone	Levels increased	Contraindicated with RPV Levels decreased with EFV, NVP and ETR	No interaction
Anticoagulants/DOACs			
Warfarin	Levels may be increased or decreased; monitor INR	Levels may be increased or decreased with EFV, NVP and ETR; monitor INR No interaction with RPV	No interaction
Low molecular weight heparins	No interaction	No interaction	No interaction
Edoxaban	Levels increased	No interaction	No interaction
Rivaroxaban	Contraindicated	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Apixaban	Contraindicated	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Dabigatran	Contraindicated with COBI Can be used with RTV 100mg	Levels increased with ETR and RPV No interaction with EFV and NVP	No interaction

KEY

Red - serious interaction - use contraindicated

Orange - drug levels affected, dose changes may be required

Green - no clinically significant interaction

ATZ: atazanavir **BIC**: bictegravir **COBI**: cobicistat **DTG**: dolutegravir **EFV**: efavirenz
ETR: etravirine **NVP**: nevirapine **RAL**: raltegravir **RPV**: rilpivirine **RTV**: ritonavir

Drug	*Boosted PIs, Stribild, Genvoya*	*NNRTIs*	*Unboosted INSTIs*
Anti-Platelets			
Clopidogrel	**Contraindicated**	**Contraindicated with EFV, NVP and ETR** **No interaction with RPV**	**No interaction**
Ticagrelor	**Contraindicated**	**Decreased exposure with EFV, NVP and ETR** **No interaction with RPV**	**No interaction**
Prasugrel	**No interaction**	**No interaction**	**No interaction**
Diabetes drugs			
Metformin	**No interaction**	**No interaction**	**Levels increased with DTG and BIC** **No interaction with RAL**
Gliclazide	**Levels decreased with RTV** **No interaction with COBI**	**Levels increased with EFV and ETR** **No interaction with NVP and RPV**	**No interaction**
Sitagliptin	**No interaction**	**Levels decreased with EFV, NVP and ETR** **No interaction with RPV**	**No interaction**
Statins			
Simvastatin	**Contraindicated**	**Contraindicated**	**No interaction**
Rosuvastatin	**Levels increased** **Maximum dose 10mg od**	**No interaction**	**No interaction**
Atorvastatin	**Levels increased** **Maximum dose 20mg od**	**Levels decreased with EFV, NVP and ETR** **No interaction with RPV**	**No interaction**
Antacids			
PPIs	**Contraindicated with AZT** **No interaction with other boosted PIs**	**Contraindicated with RPV** **No interaction with EFV, NVP and ETR**	**No interaction**
Ranitidine	**Use ATZ 12 hours apart** **No interaction with other PIs**	**Use RPV 12 hours apart** **No interaction with EFV, NVP and ETR**	**No interaction**

Table 2 **Commonest potential serious drug-drug interactions with ARVs**

Drug	*Boosted PIs, Stribild, Genvoya*	*NNRTIs*	*Unboosted INSTIs*
Mineral Supplements			
Iron, Calcium, Zinc, Magnesium, Aluminium and Selenium	No interaction	No interaction	Separate administration by at least 6 hours
Erectile Dysfunction (ED)			
Sildenafil	Contraindicated for Pulmonary Hypertension ED - maximum dose 25mg every 48 hours	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Tadalafil	ED - maximum dose 10mg every 72 hours	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Vardenafil	Contraindicated	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Opiates			
Morphine	Levels increased, monitor for opiate toxicity	Levels increased with EFV and ETR, monitor for opiate toxicity No interaction with NVP and RPV	No interaction
Codeine and dihydrocodeine	No interaction	No interaction	No interaction
Tramadol	Levels increased	Levels decreased with EFV and NVP No interaction with ETR and RPV	No interaction
Oxycodone	Levels increased	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction

Table 2 **Commonest potential serious drug-drug interactions with ARVs**

Drug	*Boosted PIs, Stribild, Genvoya*	*NNRTIs*	*Unboosted INSTIs*
Anticholinergics			
Oxybutynin	Levels increased	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Solifenacin	Levels increased Maximum dose 5mg od	Levels decreased with EFV and NVP; increased with ETR No interaction with RPV	No interaction
Tolterodine	Levels increased	Levels decreased with EFV, NVP and ETR Caution with RPV as both prolong QTc interval.	No interaction
Sedatives			
Diazepam and other benzodiazepines	Levels increased	Levels decreased with EFV and NVP; increased exposure with ETR No interaction with RPV	No interaction
Temazepam	No interaction	No interaction	No interaction
Zopiclone	Levels increased	Levels decreased with EFV, NVP and ETR No interaction with RPV	No interaction
Dopamine Antagonists			
Haloperidol	Levels increased	Levels decreased with EFV, NVP and ETR. Caution with RPV as both prolong QTc interval.	No interaction
Olanzapine	Levels decreased with RTV No interaction with COBI	Levels decreased with EFV No interaction with NVP, ETR and RPV	No interaction
Quetiapine	**Contraindicated**	Levels decreased with EFV, NVP and ETR Caution with RPV as both prolong QTc interval.	No interaction
Risperidone	Levels increased.	Levels decreased with EFV, NVP and ETR. No interaction with RPV	No interaction

Table 2 **Commonest potential serious drug-drug interactions with ARVs**

Drug	*Boosted PIs, Stribild, Genvoya*	*NNRTIs*	*Unboosted INSTIs*
Anti-Nausea agents			
Metoclopramide and cyclizine	No interaction	No interaction	No interaction
Ondansetron	No interaction	No interaction with EFV, NVP and ETR Caution with RPV as both prolong QTc interval	No interaction
Domperidone	Contraindicated	Levels decreased with EFV, NVP and ETR Caution with RPV as both prolong QTc interval.	No interaction
NSAIDs			
Ibuprofen	No interaction	Levels increased with EFV and ETR No interaction with NVP and RPV	No interaction
Diclofenac* **Diclofenac is not recommended in patients with high cardio vascular risk*	No interaction	Levels increased with EFV and ETR No interaction with NVP and RPV	No interaction
Naproxen	No interaction	Levels increased with EFV and ETR No interaction with NVP and RPV	No interaction

Table 2 **Commonest potential serious drug-drug interactions with ARVs**

DISCLAIMER

Note that the above table does not include all drug-drug interactions.
Further information is available on the following websites:

- www.hiv-druginteractions.org
- www.eacsociety.org/files/guidelines_9.0-english.pdf
- hivclinic.ca/drug-information/drug-interaction-tables/

Due to the rapidly changing nature of information about HIV treatment and therapies, readers are advised to recheck the information contained in this publication with the above websites before applying it to patient care. If you require further information on drug-drug interactions, please seek help from a local specialist HIV pharmacist.

HIV Monitoring Tests

All HIV patients undergo regular testing to monitor their HIV condition and to assess treatment failure, drug toxicities and potential co-morbidities:

Six monthly tests

- HIV viral load
- Full blood count
- Liver enzymes, kidney function and calcium and phosphate levels
- Syphilis and other sexually transmitted infections (STIs)
- Tests related to other conditions requiring on-going treatment
- Urine protein:creatinine ratio (uPCR) if taking tenofovir

Annual tests

- CD4 count
- Fasting lipid levels
- Hepatitis B and C status
- Cervical and anal cancer screening in women
- Anal cancer screening in men-who-have sex with men (MSM)

All other testing is as for the general population as they age.

Age-related Co-morbidities in HIV

MOUTH, SKIN AND HAIR

HIV infection can give rise to oral symptoms, especially when CD4 counts are <300, such as oral candida (thrush) and angular cheilitis responsive to clotrimazole/hydrocortisone cream, hairy leucoplakia which can be treated with acyclovir 800mg tds for 3 weeks, and mouth ulcers. Gingivitis, gum recession and reduced saliva are common with HIV. All dental procedures, including tooth replacement, are safe to perform in people with HIV infection irrespective of age. If an anaesthetic is required it is important the dentist is aware of the ART, as some significant interactions exist *[Table 2]*.

Skin conditions associated with HIV, such as folliculitis, seborrhoeic eczema, psoriasis and bacterial skin infections tend to improve once the CD4 count rises on treatment. However, some viral infections, such as warts and molluscum contagiosum, may worsen as immunity returns. Many ARVs can result in allergic drug rashes and occasionally Stevens Johnson syndrome *[Table 1]*. Some conditions are common in both HIV and ageing, such as ichthyosis, shingles and skin cancers, with HIV doubling the risk of malignant melanoma. Herpes zoster (shingles) is common with HIV and also with ageing, PAWH should be vaccinated if the CD4 count is >200.

Foot-care complications of HIV include peripheral neuropathy, fungal infections, and verrucae, which can be quite resistant to treatment.

Alopecia occurs with partial or total hair loss and as a patchy form with syphilis, which is common in MSM with HIV.

HEART AND BLOOD VESSELS

CVD in HIV can occur at an earlier age than in non-HIV-infected individuals. It is vital to address modifiable risk factors, especially hypertension and smoking, which are commoner in those with HIV. Cardiovascular risk assessment tools such as Q-risk 3 and Framingham may underestimate risk in HIV patients, but are still valuable.

Extreme care must be taken to choose a statin that will not interact with ART *[Table 2]*, as this is one of the commonest serious drug-drug interactions seen in HIV treated individuals.

Hypertension is associated both with ageing and HIV infection, especially if the viral load is high, the person is of African heritage and/or has diabetes. Both hypertension and diabetes are treated as for the general population with reference to possible drug-drug interactions *[Table 2]*.

LUNGS

HIV treatment has led to an impressive reduction in serious or fatal lung infections, such as Pneumocystis pneumonia (PCP), so now most chest infections in PAWH are those seen in any ageing population. Individuals with CD4 cell counts <200 will usually be given oral cotrimoxazole or inhaled pentamidine prophylaxis against PCP.

PAWH have high rates of chronic obstructive airways disease (COPD). Factors, such as predisposition to recurrent chest infections and higher rates of smoking in HIV-infected individuals play a role, as does HIV-related immune activation. Serious and avoidable drug-drug interactions can occur between several ARVs and some steroid inhalers *[Table 2]*.

Influenza (flu) seems to cause more severe illness in people with HIV, especially in those with low CD4 counts and flu vaccination in HIV prevents more death and illness than in any other group. Inactivated flu vaccine are given by injection to HIV patients, irrespective of CD4 count or age, a quadrivalent vaccine to those under 65 and a trivalent one in those over 65. The live-attenuated nasal spray vaccine should not be used.

Pneumococcal infections are commoner in HIV patients than the general population, especially in those with low CD4 counts, even on ART. Vaccination against pneumococcus is recommended for everyone with HIV, irrespective of age; it works better in people with a CD4 count >200. Current BHIVA vaccination policy recommends an initial conjugate vaccine to be given once and that HIV patients aged >65 or with other co-morbidities also receive the polysaccharide pneumococcal vaccine.

HIV infection increases the likelihood of developing TB disease, and the risk of becoming ill is greater in those with very low CD4 counts. ART greatly reduces the risk of active TB, but it remains important to test for TB in people from TB endemic countries and those with low CD4 counts. Treatment is as for the general population but care is important regarding drug-drug interactions with ARVs *[Table 2]*.

Lung cancer is 2-3 times commoner in people living with HIV and rates rise with age. As smoking is strongly associated, it's unclear if this increased risk is due to HIV itself or higher rates of smoking. Lung masses or shadows in PAWH can be caused by conditions other than lung cancer and should be investigated promptly.

KIDNEYS

Kidney disease in HIV is like that seen in ageing, with a few exceptions. Untreated HIV may present, especially in those of African heritage, with HIV-associated nephropathy (HIVAN) which should be treated by commencing HIV therapy. Some ARVs cause kidney stones, consisting of drug crystals and others a proximal tubulopathy and sometimes Fanconi syndrome *[Table 1]*.

Anyone with HIV and serious kidney disease should be seen jointly with a nephrologist.

BONES AND JOINTS

HIV can be associated with both osteopoenia and osteoporosis, with fractures occurring at an early age. The reason for this is unclear, but the longer a person is infected the greater the risk. Women with HIV may have early menopause, increasing their risk of osteoporosis, and men with hypogonadism, commonly seen in HIV infection, are also at increased risk of bone loss. The value of FRAX scores and how frequently DEXA scans should be performed in those with HIV is unclear, although guidance from the HIV un-infected ageing population studies suggests it should be based on the severity of osteoporosis when first measured. Treatment is as for the general population.

Research has shown that almost a third of HIV-positive patients are vitamin D deficient, associated with low CD4 cell counts, as well as poor exposure to sunlight and/or darker skin. Certain antiretrovirals are implicated in this deficiency *[Table 1]*. Replacement therapy is advised.

HIV infection joint problems are common and related to inflammation and infection. Diagnosis and treatment is essentially similar for HIV and age-related joint disease. However, it is vital that possible drug interactions with ARVs are considered when steroids, either oral, intraocular or injected, are given *[Table 2]*.

BLOOD DISORDERS AND CANCERS

Anaemia and thrombocytopaenia are common both in older people and those with HIV, in the latter it may be associated with co-trimoxazole used for treating or preventing PCP.

HIV suppresses the immune system, rendering it less able to monitor and kill cancerous cells, consequently, the risk of developing many cancers increases and they often occur at an earlier age. In the past, people with HIV infection and a very damaged immune system typically got three types of cancer: Kaposi's sarcoma (KS), non-Hodgkin's lymphoma and invasive cervical cancer in women. These are referred to as AIDS-related cancers and are all virally mediated. KS is often missed or misdiagnosed, see images at **www.hiv.va.gov/provider/image-library/ks-hhv-8.asp**.

Several, non-AIDS defining cancers appear commoner in HIV, although this may be related to higher rates of smoking and co-infection with oncogenic herpes or hepatitis viruses. They include: lung cancer; Hodgkin's lymphoma; anal cancer, in both men and women and liver cancer (hepatocellular carcinoma) in those co-infected with hepatitis B and hepatitis C. Kidney and skin cancers, as well as leukaemia and head and neck cancers, are twice as common in those with HIV infection.

PAWH should follow UK cancer screening programmes through their GP surgery and if possible access anal intraepithelial neoplasia (AIN) screening services through their HIV clinic.

LIVER DISEASE AND VIRAL HEPATITIS

Liver disease is common in patients living with HIV. Chronic viral infections with Hepatitis B and C are the commonest causes, but drugs (both ARVs and non-ARVs, including over-the-counter and herbal medications), alcohol misuse, recreational drug use and obesity-associated non-alcoholic fatty liver disease are increasingly being recognised as important causes of liver morbidity. Some opportunistic infections (e.g. mycobacterial infections, visceral leishmaniasis and disseminated CMV) and their treatment may also cause liver disease.

Any elevation in liver enzymes must prompt investigation, in conjunction with the local hepatology team, to ascertain the cause and to determine the extent of liver inflammation and fibrosis. In most cases this can be achieved by a non-invasive test (hepatic elastography, APRI, FIB-4), but occasionally a liver biopsy may be required. In the case of drug-induced liver injury the offending drug(s) will need to be stopped.

- **Hepatitis A (HAV)** is common in HIV infected MSM, if antibodies are not present, then vaccination to prevent future infection is important.
- **Hepatitis B (HBV)** infected individuals should be looked after jointly with a hepatologist, if possible. All HBV patients should be tested for HIV as some antivirals used for HBV also have anti-HIV activity and their use alone could result in suboptimal HIV suppression *[Table 1]*. Vaccination against HBV should be given to those who have no immunity
- **Hepatitis C (HCV)**: if antibodies are present, a HCV RNA viral load should be performed, and if detectable the individual referred for curative treatment to a hepatologist with HIV expertise.

HORMONES AND LIPODYSTROPHY

Thyroid disorders do not appear to be significantly greater in HIV, although hypothyroidism has been associated with some ARVs *[Table 1]*.

Women with HIV infection may experience irregularities in their cycles and are at risk of an early menopause (under 45 years). There is limited research in the use of hormone replacement therapy (HRT) in HIV-positive women and commonly used forms may interact with ARVs *[Table 2]*. Those women who continue to be sexually active, throughout and beyond the menopause, should be encouraged to practice safer sex and to screen for sexually transmitted infections. All women should continue to have regular cervical screening to the age of 65, and to be breast aware at all ages. HIV and some ARVs may cause changes in the breast, making them larger and lumpier; these lumps are usually benign cysts of breast tissue.

In HIV infected men testosterone deficiency often occurs at an early age and is commoner with a low CD4 count, or in those who have taken androgenic steroids (testosterone supplements); replacement therapy works in most cases. Painful gynaecomastia can occur in men with HIV, caused by some ARVs *[Table 1]*, recreational use of anabolic steroids or hormone imbalances. An ultrasound should be performed and referral made to an endocrinologist.

Frequency and interest in sex diminishes with age to varying degrees in different individuals; specifically, in women it may occur suddenly with the onset of the menopause. In men erectile dysfunction (ED), problems with ejaculation and inability to reach orgasm may occur, both with ageing and HIV infection, and is associated with certain HIV medications, especially protease inhibitors, and some antidepressants and antihypertensive drugs.

In addition to age-related body shape changes, HIV-associated lipodystrophy presents itself as lipoatrophy (fat loss) or lipohypertrophy (fat gain), sometimes seen together in the same individual; see images at **www.hiv.va.gov/provider/image-library/lipodystrophy.asp**. Factors thought to contribute are: some ARVs (including a number no longer used), nadir CD4 count, poor diet, family history and smoking. Facial lipoatrophy of the cheek fat pads and the temple area is now seen, by some, as a hallmark of HIV infection and can lead to stigma and loss of self-esteem. HIV-related lipoatrophy can mimic the fat loss that occurs with ageing on the arms, legs, feet and buttocks.

Lipohypertrophy is the accumulation of fat that occurs within the body around the internal organs and, more obviously, in the breasts and around the waistline of both men and women. It can be difficult to distinguish lipohypertrophy from simple weight gain and there is no single test to determine this. Starting ART leads to a 'return to health' and this often results in weight gain, not always in the right places. Evidence about which drugs are better or worse for lipodystrophy is constantly emerging

and likely to change over time, with new published data.

Cosmetic treatments (skin fillers) for facial lipoatrophy in HIV can be used successfully to reduce the obvious signs of facial fat loss. Lipoatrophy involving the buttocks may make certain sitting positions uncomfortable and sleeping and bathing may be difficult. Padded underwear (cycling shorts are quite effective) and blow-up sitting rings often help. Excess lipoatrophy in women may require breast reduction.

NERVES AND BRAIN

HIV itself can affect both the central and peripheral nervous systems, while opportunistic infections such as cerebral toxoplasmosis, CMV encephailitis, cryptococcal or tuberculous meningitis and primary brain lymphoma are often the initial presentation of HIV disease. Severity of brain disease is worse and can be fatal in untreated HIV and in those with low CD4 cell counts.

Since the advent of ART, the prevalence of HIV dementia has declined. However, some (but not all) research has shown that HIV-related neurocognitive disorders (HAND) are rising as people live longer with HIV infection, especially with those whose HIV is not well controlled with ART. These form a spectrum, from asymptomatic neurocognitive impairment (ANI) where neural changes are present without symptoms, via mild cognitive impairment (MCI) with noticeable deterioration in concentration span, short-term memory and ability to perform activities of daily living (ADLs).

The final stage, of AIDS related dementia, is similar to that seen with ageing but may develop earlier with HIV infection. Nadir CD4 count is a risk factor for significant neurological decline, even if an undetectable viral load and good CD4 levels are subsequently achieved on treatment. This implies that HIV-associated brain disease is related to duration and severity of infection and underpins the argument for starting ART soon after diagnosis. Some drugs used to treat HIV may offer more protection against neurocognitive decline than others by reducing the activity of the virus in the brain more effectively. Diagnosis both clinically and by neuropsychological testing is standard-of-care in many HIV clinics.

Peripheral neuropathy, common in PAWH, may be due directly to some ARVs *[Table 1]*, other medications, vitamin deficiencies, diabetes and excessive alcohol intake.

EYES

Once the immune system has been restored with ART there are no specific ocular conditions that appear to be associated with HIV itself. Yellowing of sclera and/or skin can be caused by certain HIV drugs *[Table 1]*. Monitoring and treatment of eye conditions should be as for normal ageing.

SECTION THREE

Elderly Care for HIV Specialists

Elderly Care for HIV Specialists

With the successful treatment of HIV infection and an ageing population the skills required to look after PAWH mirror those of general and elderly medicine physicians (EMPs). Assessment and management is a component of a multidisciplinary comprehensive geriatric assessment (CGA).

Within this, the EMP concentrates on a holistic medical review, diagnosing and optimising the management of medical conditions. Common presenting problems are listed below. To formulate an individualized care plan, referral to other specialists, therapists, specialist nurses and mental health teams is often required. Use a **Geriatric Assessment Form** *[see Appendix A]*, or the British Geriatrics Society assessment form - **www.bgs.org.uk/resources/resource-series/fit-for-frailty**

MANAGING MEDICAL PROBLEMS IN ELDERLY MEDICINE

The key principles of an assessment are summarized by the **AIM** approach:

A - ASSESS

I - INVESTIGATE

M - MANAGE

Many conditions present non-specifically in older patients, so a routine geriatric blood screen (GABS), helps detect clinically significant metabolic abnormalities.

GERIATRIC BLOOD SCREEN (GABS)

- **Full blood count**
- **Glucose and HBA1c**
- **Urea and electrolytes**
- **Bilirubin and transaminases**
- **Thyroid function tests**
- **B12 and folate**
- **Calcium and phosphate**
- **Vitamin D**

1. POLYPHARMACY

ASSESS:

- Obtain an accurate and current drug history - always linked to the medial history:
  - » Often the initial reason for a prescription is no longer relevant, such as continued prescribing of antiemetics (e.g. metoclopramide with the risk of anti- dopaminergic side effects)
  - » Be aware of prescribing cascades (e.g. amlodipine to treat hypertension causes ankle swelling, which in turn leads to a diuretic being prescribed)
  - » Recent drug initiations or drug omissions can cause presenting complaints (e.g. doxazosin and falls)
- Confirm the routes of administration of the drugs
- Establish the patient's compliance and any concerns about their medications
- Consider cognitive problems:
  - » Are their medications (e.g. antimuscarinics) aggravating the decline?
  - » What is the impact of cognitive changes on the route of administration (e.g. can the patient use inhalers effectively?), or on their compliance

INVESTIGATE:

Consider the patient's symptoms in respect of known drug adverse effects and interactions (e.g. steroids and/or antacids with ARVs) *[Table 2]*.

MANAGE:

- Apply STOPP/START criteria *[see Appendix B]* and use the Liverpool HIV Drug Interactions website, **www.hiv-druginteractions.org**
- Ensure older patients are always considered for evidence-based medication (e.g. anticoagulation for AF) and that decisions to omit treatments are made on clinical and not age-related grounds
- Important drugs to review:
  - » Opiates
  - » Anticholinergics
  - » Sedatives
  - » Dopamine antagonists
  - » NSAIDs (NB: avoid in heart failure as they increase fluid retention)
  - » Anticoagulants
  - » Diabetic medications (NB: may need to consider dose reduction in cognitive impairment where meals are forgotten, or in renal impairment with increased risk of drug accumulation and hypoglycaemic episodes)

- Consider where appropriate:
  - » Carer to prompt patient with medications
  - » Simplify regimes as much as possible to once or twice daily
  - » Dosette boxes
  - » Manual dexterity and vision of the patient
  - » Check inhaler techniques
  - » Syrups if dysphagic
  - » Link to HIV pharmacist

2. MOBILITY AND FUNCTIONAL ISSUES

ASSESS:

- Establish whether there has been a sudden/acute change in mobility or whether this a chronic progressive decline

RED FLAG - the speed at which the symptoms have developed

- Assess whether the loss of function is musculoskeletal or neurological in origin
- Establish if there is associated pain, as this is often key to the origin of the symptoms
- If neurological in origin, is there a central/cortical or peripheral component?
- Establish if there is motor, sensory or autonomic loss

RED FLAG - new sphincter disturbance/rapid onset weakness/ sensory loss

RED FLAG - new central or cortical features

RED FLAG - significant new pain

- Always take a falls history when there is new mobility or functional decline (see below)
- Is the patient currently coping at home, with or without assistance?
- Always enquire if they are struggling to get to, on or off the toilet
- Could alcohol or recreational drugs be causal or aggravating?
- Consider all medications (e.g. statins causing myalgia, myositis and myopathy, or a movement disorder secondary to dopamine antagonists)

INVESTIGATE:	MANAGE:
▪ Request radiological investigations appropriate to the speed of onset of the symptoms (NB: subdural bleeds can present indolently with generalised instability and poor balance as well as personality changes) ▪ Complete GABS; include ESR if symptoms suggest polymyalgia rheumatica (PMR) ▪ **Timed up and go test (TUGT)** - the British Geriatrics Society advocate this as a screening tool. **The patient is timed getting up from a chair, walking to a point 3m away and then returning to the chair.** A time >10 seconds indicates the need for a comprehensive geriatric assessment ▪ **Barthel Index** *[see Appendix C]* is used to measure dependency in Activities of Daily Living. It helps to establish the patient's baseline and to asses response to an intervention	▪ Adequate analgesia is key to maintaining mobility, sleep patterns and mood ▪ Refer to physiotherapist for strength and balance training, aerobic exercise and goal setting. They can assess appropriate walking aids and size - borrowing these from a friend may increase falls! ▪ Refer to occupational therapy who can assess and optimise a patient's day to day function, maximising independent living ▪ Assess the patient's overall nutrition and calorie intake - consider referral to a dietician ▪ Consider speech and language therapist in progressive neurological conditions to maximise nutrition and minimise the risk of aspiration ▪ Address osteoporosis risk and management

3. FALLS

ASSESS:	
▪ Complete a falls history and establish the frequency of falling and how this has changed. **RED FLAG** - More than two falls in one year	▪ What is the nature of the falls, are these trips, postural instability or hypotension? ▪ Are there pre-fall symptoms? Are there post-fall symptoms? ▪ Is there a functional component? (e.g. falling at night going to the toilet)

- Is poor vision a cause? (e.g. cataracts)
- Always be clear as to whether the patient is describing nonspecific postural instability, dizziness or true vertigo (see section on dizziness)
- Exclude syncope or a cardiac dysrhythmia (if syncope see section below)

INVESTIGATE:

- Perform a 12 lead ECG - may establish a bradycardia, heart block, or undiagnosed AF. Look for evidence of new MI presenting as a fall, or evidence of arrhythmia risk, such as previous ischaemic changes or an abnormal QTc
- Check lying and standing blood pressure, a systolic drop of >20mmHg is significant
- GABS -to exclude acute infection, electrolyte disturbance or thyroid dysfunction which can cause arrhythmias, or muscle weakness
- Request an echocardiogram if there is a murmur (especially an ejection systolic murmur compatible with aortic stenosis), or signs of cardiac dysfunction
- A comprehensive medication review is vital in a falls assessment

RED FLAG - warfarin or DOAC - consider stopping

MANAGE:

- Optimize medical co-morbidities

RED FLAG - new diagnosis of bradycardia - consider stopping rate liming drugs (NB: beta blocker eye drops have systemic effects)

- A medication review may identify drugs that need to be reduced or removed, especially sedatives and opiates (NB: oxycodone preparations are recommended in renal impairment)
- Assess recent ARV changes (e.g. maraviroc causes postural hypotension)
- If postural hypotension is confirmed, then review the need for diuretics and antihypertensives. A 24-hour BP can be helpful to accurately confirm blood pressure control and an echocardiogram can also be helpful to assess ventricular function and support diuretic dose alteration. Often this is a difficult balance and it is important that patient is fully informed and actively takes part in the decision-making process
- Refer to physiotherapy to support gait, strength and mobility programmes
- Refer to occupational therapy to maximize function and independent living
- Refer to the local falls clinic for a full risk assessment
- Address osteoporosis management

4. URINARY INCONTINENCE

ASSESS:

- For a female patient assess whether the incontinence history is typical for stress incontinence (often linked to previous obstetric history), urge incontinence, or both . Note that a chronic cough can significantly aggravate stress incontinence. Do the symptoms suggest a bladder outflow obstruction and subsequent overflow?
- For a male patient establish if there are symptoms of prostate enlargement

RED FLAG - new sphincter disturbance

RED FLAG - pain on micturition, haematuria or suspicion of prostate cancer

- It is important to assess:
  - » **Bladder diary** *[see Appendix D]*, to include fluid intake and urine output
  - » Lower urinary tract symptoms
  - » Typical daily fluid intake
  - » Caffeine and alcohol intake
- Perform a medication review (NB: diuretics, anticholinergics or opiates can cause urinary retention with subsequent overflow)

INVESTIGATE:

- Urine dip, MC&S and cytology
- Bladder diary to include fluid intake and urine output *[see Appendix D]*
- Consider a bladder ultrasound scan and post void residual volume (>200mL post void may suggest the need for a urinary catheter)
- GABS
- Prostate specific antigen (PSA)
- Exclude diabetes (HBA1c)
- Consider pelvic malignancy in bladder outlet obstruction
- Consider sexually transmitted diseases

MANAGE:

- Treat urinary tract infections (UTIs) according to local guidelines

RED FLAG - men with lower UTIs should be investigated for an underlying structural cause

RED FLAG - painless haematuria should be referred under the 2-week rule to urology as bladder cancer suspicion is high

Refer urgently according to Red Flag symptoms

- In a patient with an increased BMI, weight reduction is important - consider referral to a dietician
- Reduce caffeine intake
- Ensure regular bowel habit
- Involve continence services early in the management plan, as incontinence is distressing and leads to mood disturbance and withdrawal

from social activities - incontinence pads are free on the NHS

- For stress incontinence provide pelvic floor exercise leaflet
- For urge incontinence provide bladder re-training leaflet
- Consider urodynamics/urology referral where aetiology or management difficult

5. MOOD DISTURBANCE

ASSESS:

- Are there features and symptoms of the mood disturbance - are symptoms self-reported or from a relative or carer?
- Establish any biological symptoms, particularly weight loss or sleep disturbance
- All patients should have a risk assessment
- Establish how much support there is at home or the degree of social isolation
- Is there a past psychiatric history or a previous history of mood disturbance
- Assess alcohol intake and past and present use of recreational drugs
- Has there been an acute associated event such as a bereavement or financial concerns

INVESTIGATE:

- GABS
- Medication review
- Perform a **Hospital Anxiety and Depression Score** *[see Appendix E]* to diagnose, assess severity and guide treatment and response
- Consider a cognitive assessment
- Measure weight/BMI, important as a baseline and to assess treatment response

MANAGE:

- Manage according to risk
- Consider if HIV medications may be causal or exacerbating
- Refer to the Mental Health Liaison Service and consider starting first line medication

6. COGNITIVE DECLINE

ASSESS:

- Take a full history of the decline from patient and family/carers
- Exclude mood disturbance
- Establish whether there is hearing loss or reduced vision
- Take a full medication history
- Assess current and previous alcohol and/or recreational drug use
- Establish if there is a history of falls, especially important if taking anticoagulants

RED FLAG - consider a subdural haemorrhage as causal

INVESTIGATE:

- CT brain scan - important in all PAWH with cognitive decline, to assess reversible causes and to help diagnose dementia sub types. Arrange urgently if there is a sudden deteriorationn
- Consider an MRI brain if CT not diagnostic and a vascular aetiology is considered
- GABS - important to check normal B12, folate and thyroid levels
- Assess cognition with a recognized tool, such as:
  - » **Mini Mental State examination (MMSE)** *[see Appendix F]*
  - » **Montreal Cognitive Assessment (MOCA)** *[see Appendix G]* - this test is helpful to discriminate between normal and mild cognitive impairment
- Perform a mental state examination to exclude a psychiatric diagnosis
- Document a capacity assessment
- Exclude differentials and other contributory diagnoses (e.g. depression)

MANAGE:

- Refer the patient to a memory assessment service
- Treat reversible parameters
- Modify lifestyle - smoking/alcohol

7. STROKE OR TRANSIENT ISCHAEMIC ATTACK

ASSESS:

RED FLAG - suspected stroke is a medical emergency - refer immediately to emergency team

INVESTIGATE:

- Full inpatient work up by specialist stroke team - outside the scope of this guide

MANAGE:

- After acute treatment by the stroke team, ongoing secondary prevention includes:
  - » Antiplatelets, or anticoagulants if patient in AF, as advised by the stroke team. Both are lifelong unless new contraindications develop. Use lowest dose PPI to protect from antiplatelet side effects (NB: check ARV compatibility, *[Table 2]*)
  - » Blood pressure management, (consider a 24-hour BP recording to assess control) - target systolic BP < 130mmHg
  - » Lipid modification - aim to reduce non-HDL cholesterol by >40% in 3 months - if not achieved with weight loss, lifestyle factors and lipid lowering agents discuss with specialist team
  - » Check HbA1c – if abnormal consider treatment in conjunction with GP in the first instance
  - » Aim for alcohol reduction to <14 units per week spread over 3 days
  - » Support smoking cessation and avoidance of passive smoking
- Consider:
  - » Depression post stroke
  - » Speech and language therapist for both dysphasia and swallowing concerns, which can worsen with intercurrent illness
  - » Ongoing physiotherapy
  - » Treatment options for spasticity including botulinum toxin - refer to rehabilitation team
  - » Continence issues

8. MOVEMENT DISORDERS

ASSESS:

- Parkinsonism has many causes including idiopathic Parkinson's disease (PD), vascular parkinsonism, drug induced parkinsonism, Lewy body dementia, progressive supranuclear palsy and multisystem atrophy. The specific clinical features typical to these conditions are outside the scope of this review
- The key characteristic features of parkinsonism are:
  - » Postural instability
  - » Bradykinesia
  - » Pill rolling tremor (usually unilateral)
  - » Cogwheel rigidity (combination of lead pipe rigidity and pill rolling tremor)
  - » Other features include expressionless face and micrographia
  - » Falls occur late in PD – if the patient presents with falls consider another cause (e.g. drug related - metoclopramide, prochlorperazine or antipsychotic medication or a parkinson's plus syndrome)

INVESTIGATE:

- All patients need a CT brain to investigate aetiology
- Complete GABS
- A DaTSCAN can reveal idiopathic Parkinson's disease if diagnosis is uncertain

MANAGE:

- All new patients should be referred to a neurologist or EMP with specialist interest
- It is vital to ensure that PD medications are always given as per patient routine
- If the patient is nil by mouth, consider prescribing a dopamine agonist patch or a temporary NG tube
- Emergency management of Parkinson's disease: **www.parkinsons.org.uk/sites/default/files/2017-12/pk0135_emergencymanagement.pdf**
- It is important to stop non-essential dopamine antagonists (e.g. regular metoclopramide)
- Discuss changes to antipsychotic medication with a psychiatrist
- Beware, anticholinergics prescribed to manage tremor often cause confusion in older patients
- It is important to assess and manage the non-motor symptoms of

Parkinson's disease which are often overlooked:

- » Depression
- » Constipation
- » Sleep disturbance
- » Dribbling of saliva

9. NUTRITION

ASSESS:

- Always look for possible causes of reduced appetite, such as:
  - » Polypharmacy
  - » Mood disturbance
  - » Upper GI causes (e.g. dyspepsia or dysphasia)
  - » Lower GI causes (e.g. constipation)
- Consider causes of weight loss:
  - » Malignancy
  - » Chronic disease (e.g. undiagnosed COPD)
  - » Smoking
  - » Alcohol
- Consider dentition, ill-fitting dentures, mouth ulcers or dry mouth
- Ask about the impact of mobility restriction and access to shops
- Consider financial limitations
- Consider undiagnosed cognitive impairment, or if diagnosed any impact on meal routines or access to food
- All patients with poor nutrition are at risk of skin damage and pressure ulcers, particularly those who are incontinent
- Always examine the skin and pressure areas in an at-risk patient and if needed seek advice from a Tissue Viability Nurse
- If the expected standard of care has not been met, consider a safeguarding referral

INVESTIGATE:

- Complete GABS
- Record BMI at initial assessment and monitor regularly
- Apply a risk assessment tool such as the **Malnutrition Universal Screening Tool (MUST)** *[Appendix H]*
- Investigate for underling malignancy or chronic diseases as appropriate

MANAGE:

- Complete a full medication review (e.g. anticholinergics can cause a dry mouth; digoxin toxicity is associated with nausea)
- Refer to dietitian according to MUST
- Consider Meals on Wheels or other food support services

10. SYNCOPE

ASSESS:

- Take a full history of the episodes. It is important to establish time-lines and possible associations to aid the diagnosis
- Establish whether the episodes are associated with chest pain

RED FLAG - angina/ischaemic heart disease or critical aortic stenosis - refer to cardiology

- Establish if situational (e.g. micturition syncope)
- Assess if there are pre-syncopal symptoms or palpitations
- Consider aortic stenosis, seizure or a metabolic cause (e.g. hypoxia)
- A full medication review is essential. All antiarrhythmics can be pro arrhythmic, so does the time-line suggest the episodes are secondary to new medication (e.g. alpha blocker prescribed for prostatic symptoms)?

INVESTIGATE:

- Complete GABS
- Record a lying and standing BP, a >20mmHg systolic drop on standing is significant
- A baseline 12 lead ECG may establish a bradycardia, heart block, or undiagnosed AF
- Look for evidence of new MI presenting as a syncopal episode, arrhythmia risk such as previous ischaemic changes, or an abnormal QTc (NB: importance of medication review)
- Consider a 24-hour ECG or other ambulatory monitor appropriate to the symptom frequency
- Consider an echocardiogram to exclude significant valvular or structural heart disease
- Consider a 9am cortisol level if a history of steroid treatment, malignancy or biochemical evidence of possible adrenal insufficiency

MANAGE:

If there is a postural drop > 20mmHg

- Consider increasing fluid intake if no congestive cardiac failure (CCF)
- Compression stockings if no risk of peripheral vascular disease (PVD)
- Hold diuretics if not in CCF
- If renal impairment, stop ACE inhibitor
- Consider referral to local falls service

RED FLAG: - syncope with bradycardia or tachycardia - refer to cardiology

- Always give DVLA advice; **www.gov.uk/guidance/assessing-fitness-to-drive-a-guide-for-medical-professionals**

11. DIZZINESS

ASSESS:

- Dizziness can be an unhelpful term as non-specific to aetiology
- Establish if true vertigo due to:
  - » Acute peripheral cause (e.g. vestibular neuritis or benign paroxysmal positional vertigo BPPV)
  - » **RED FLAG** - Acute central cause (e.g. posterior circulation stroke)
  - » Consider if secondary to postural hypotension (> 20 mmHg systolic drop on standing) or pre-syncopal symptoms (see syncope section)
  - » Consider chronic causes of 'dizziness' (e.g. cerebrovascular disease)
  - » Consider alcohol/ recreational drug use
  - » Complete a full medication review

INVESTIGATE:

- Perform a neurological examination
- Important to fully assess the patient's gait - consider a cerebellar syndrome
- A Dix-Hallpike manoeuvre is helpful in assessing true vertigo and establishing whether the cause is peripheral or central (refer to ENT or EMP)
- Record a lying and staring BP
- Perform an ECG
- Complete GABS
- Obtain a CT head to exclude structural causes (e.g. acoustic neuroma)

MANAGE:

- Medication review - consider DDIs
- Consider a falls clinic referral
- Consider a physiotherapy assessment for diagnosis, management plan and assessment for walking aids
- Complete an osteoporosis assessment

12. CONSTIPATION

ASSESS:

RED FLAG - signs of sub-acute bowel obstruction - urgent surgical referral

- Older patients with constipation can present non-specifically
- Presentation can be insidious (e.g. reduced appetite)
- Constipation is a common non-motor complication of Parkinson's disease
- Patients can present with increased confusion or delirium, particularly if there is underlying cognitive impairment
- Consider associated complications such as an obstructed bladder neck or secondary UTI
- Enquire about local symptoms (e.g. haemorrhoids)

INVESTIGATE:

- Always perform a rectal examination
- Complete GABS

RED FLAG - hypercalcaemia - exclude malignancy

- Ensure normal thyroid function tests
- Complete a medication review
- An abdominal x-ray will exclude bowel obstruction
- Consider a CT abdomen or colonoscopy and refer to the GI team if there is a change in bowel habit, weight loss or iron deficiency anaemia

MANAGE:

For simple constipation:

- Increase oral fluid intake and recommend a high fibre diet - consider Fybogel
- Where possible reduce opiates
- Prescribe suppositories if hard stool on digital rectal examination
- Increase bowel motility with bowel stimulants and combine with stool softeners
- Exclude urinary retention

13. DELIRIUM

ASSESS:

- Delirium is a common symptom for older patients
- Patients at risk of delirium:
  - » Known or undiagnosed cognitive impairment increases risk 10-fold
  - » Hospital inpatient - seen in approximately 30% of older inpatients

- » Anyone with sensory impairment
- Delirium can be precipitated by:
  - » Any infection, but consider opportunistic infection or HIV related tumours
  - » A biochemical abnormality
  - » Endocrine dysfunction
  - » Medication - common as a drug side effect or secondary to a DDI
  - » The post-operative period
  - » An acute neurological disorder
  - » Uncontrolled pain
  - » Constipation or urinary retention
  - » Infected pressure sores
- Patients typically have an agitated delirium, but consider hypo-active delirium where patients become more withdrawn with a flat affect

INVESTIGATE:

- **The Confusion Assessment Method (CAM)** *[see Appendix I]* is more sensitive for diagnosing delirium than using an abbreviated mental test score
- Complete GABS
- Mental capacity assessments are important to document
- Consider a Deprivation of Liberty safeguard (DOLs) assessment

MANAGE:

- Treat the underlying cause and normalise the patient's environment:
  - » Ensure natural light
  - » Make sure a clock is visible
  - » Involve family and friends
  - » Minimise medicalization
  - » Where possible remove cannulas and catheters
- Optimise nutrition and address hydration
- Ensure regular bowel function
- Identify the patient's space with individualised bed linen
- Allow safe mobilisation
- Drugs should not be used to treat mild or moderate agitation.
- Patients with significant agitation often require high levels of nursing support and are best manged on wards where the team have the relevant expertise
- Only consider sedative medication when there is a risk of harm or danger to the patient or others, or severe distress. Consult local guidelines. (NB: avoid antipsychotics in patients with Lewy Body dementia as increased mortality and in patients with Parkinson's disease as it will worsen symptoms)
- It is important to keep family and carers updated - delirium is distressing for all involved and can take 4-6 weeks to resolve; around 20% of patients never return to baseline

14. FRAILTY

ASSESS:

- Refers to an at-risk state for negative health outcomes
- It is important to establish a patient's frailty status to direct management and plan interventions to prevent decline
- Frailty states are not fixed and patients may become less frail with appropriate targeted interventions and management
- Equally a relatively minor event can significant impact a patient's baseline frailty
- Do not assess frailty in an acute illness, but when the patient is clinically stable in an outpatient or community setting
- Frailty is not an inevitable part of ageing
- There is no universal definition for frailty
- **Clinical Frailty Scale** - *[see Appendix J]* is commonly used in clinical practice

INVESTIGATE:

The British Geriatrics Society recommends screening for frailty in an outpatient setting with a timed up and go test (TUGT) and the PRISMA 7 questionnaire:

- TUGT: The patient is timed getting up from a chair, walking to a point 3m away and then returning to the chair. A value of greater than 10 seconds is positive
- **PRISMA 7** *[Appendix K]* - scores 3 or above are positive

MANAGE:

- A positive TUGT or PRISMA-7 should trigger a comprehensive geriatric assessment (CGA) and referral to an elderly medicine physician
- Reversible factors to improve a patient's reserve include:
  - » Treatment of mood disturbance
  - » Optimization of nutrition
  - » Lifestyle measures including addressing smoking and alcohol consumption
  - » Treatment of sarcopenia with exercise programmes, physiotherapy support
  - » Optimization of bone health

Elderly patients are often vulnerable for a wide variety of reasons, but their risk increases significantly with isolation, cognitive impairment and worsening disability. It is important that all consultations consider the possibility of physical, psychological, financial and sexual abuse, as well as identifying deficiencies in standards of care and the need to raise safeguarding alerts to protect patients.

15. EMERGENCY ADMISSION

This quick assessment of the unwell older patient may be helpful, either in a clinic, casualty or a ward.

Collateral information from a family member or other health professional can provide useful information and may save time.

Questions should be focussed on the current problem and to identify chronic underlying problems. Check medications and assess both physical and cognitive function, as those with dementia and delirium are often undiagnosed and are more likely to have adverse events.

HISTORY

- Ensure patient has glasses and hearing aids in place if appropriate
- Introduce yourself and explain the purpose of your visit. Seat yourself at the level of the patient and speak slowly and clearly
- Ask what is troubling them (presenting symptoms) and the history of these symptoms
- Ask about other medical conditions including recent illness, GP and hospital visits, and falls
- Check what medication the patient is taking, any allergies, smoking status and alcohol/ recreational drug intake
- Ask about function in daily activities, including continence, before this admission/visit
- Ask about their home situation, whether they live alone; do they have services in place to assist them
- Ask if they have an advance care directive or appointed proxy healthcare decision maker
- When they have significant cognitive impairment information may need to be obtained from a carer or family member

PHYSICAL EXAMINATION

- Assess general appearance, personal hygiene, nutrition and hydration
- Check vision, hearing and teeth. Assess swallowing a small amount of water (25mL)
- Perform a brief cognitive screening test to assess orientation, attention, memory and language. Check ability to follow a two-step command; assess mood
- Check pulse and blood pressure both sitting/lying and standing
- Assess movement of all limbs, including tone and power, muscle wasting and active motion at major joints
- Screen peripheral pulses look for oedema, skin integrity and pressure ulcers (especially heels and sacrum)
- If possible stand patient to check ability to transfer and balance and ask them to walk several steps (ensure walking aid is available and provide standby assistance)
- Examine cardiovascular and respiratory systems and abdomen, including bladder palpation (and rectal examination if indicated)
- Ensure patient is on a fluid balance chart, stool chart, food chart and has regular pressure area assessment

The JUSTRI Patient Passport enables PAWH to keep a portable medical history for healthcare providers to reference, see **justripatientpassport.com**

APPENDIX A

Geriatric Assessment Form

Patient Contact
☐ Home
☐ Care Home
☐ GP
☐ OPD
☐ ED
☐ Frailty
☐

Clinical Frailty Score (Rockwood Scale): ☐

Patient's Details		Patient's Address	
Title		Add 1	
Name		Add 2	
Date of Birth		Add 3	
NHS Number		Town	
GP Practice		Postcode	

Cognition ☐ Within Normal Limits ☐ Mild Cognitive Impairment ☐ Dementia ☐ Delerium
☐ Abbreviated Mental test (AMT) Score: ☐ Mental Capacity Assessment required
Main lifelong occupation:

Emotional ☐ Within Normal Limits ☐ ↓Mood ☐ Depression ☐ Anxiety ☐ Fatigue ☐ Hallucination
☐ Delusion ☐ Other

Motivation ☐ High ☐ Usual ☐ Low

Health Attitude ☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Couldn't say

Communication **Speech:** ☐ Within Normal Limits ☐ Impaired **Hearing:** ☐ Within Normal Limits ☐ Impaired
Vision: ☐ Within Normal Limits ☐ Impaired **Understanding:** ☐ Within Normal Limits ☐ Impaired

Strength ☐ Within Normal Limits ☐ Weak **Upper:** ☐ Proximal ☐ Distal **Lower:** ☐ Proximal ☐ Distal

Exercise ☐ Frequent ☐ Occasional ☐ Not

		Baseline (two weeks ago)				Current (today)			
Balance	Balance	☐ Within Normal Limits	☐ Impaired			☐ Within Normal Limits	☐ Impaired		
	Falls	☐ Falls Number:				☐ Falls Number:			
Mobility	Walk inside	☐ Independent	☐ Slow	☐ Assisted	☐ Can't	☐ Independent	☐ Slow	☐ Assisted	☐ Can't
	Walk outside	☐ Independent	☐ Slow	☐ Assisted	☐ Dependent	☐ Independent	☐ Slow	☐ Assisted	☐ Dependent
	Transfers	☐ Independent	☐ Standby	☐ Assisted	☐ Dependent	☐ Independent	☐ Standby	☐ Assisted	☐ Dependent
	Bed (in/out)	☐ Independent	☐ Pull	☐ Assisted	☐ Dependent	☐ Independent	☐ Pull	☐ Assisted	☐ Dependent
	Aid use	☐ None	☐ Stick	☐ Frame	☐ Chair	☐ None	☐ Stick	☐ Frame	☐ Chair
Nutrition	Weight	☐ Normal	☐ Under	☐ Over	☐ Obese	☐ Normal	☐ Under	☐ Over	☐ Obese
	Appetite	☐ Within Normal Limits		☐ Fair	☐ Poor	☐ Within Normal Limits		☐ Fair	☐ Poor
	Swallow	☐ Within Normal Limits		☐ Impaired Fluids		☐ Within Normal Limits		☐ Impaired Fluids	
				☐ Impaired Solids				☐ Impaired Solids	
Elimination	Bowel	☐ Continent	☐ Constipated	☐ Incontinent		☐ Continent	☐ Constipated	☐ Incontinent	
	Bladder	☐ Continent	☐ Catheter	☐ Incontinent		☐ Continent	☐ Catheter	☐ Incontinent	
ADLS	Feeding	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Bathing	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Dressing	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Toileting	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
IADLS	Cooking	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Cleaning	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Shopping	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Medications	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Driving	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	
	Banking	☐ Independent	☐ Assisted	☐ Dependent		☐ Independent	☐ Assisted	☐ Dependent	

Sleep ☐ Disrupted ☐ Daytime drowsiness **Socially Engaged** ☐ Frequent ☐ Occasional ☐ Not

Social

Marital Status
☐ Married
☐ Divorced
☐ Widowed
☐ Single

Lives
☐ Alone
☐ Spouse
☐ Other

Home
☐ House…
☐ Steps… Number of levels: ☐ Number of steps: ☐
☐ Apartment
☐ Supported Living
☐ Care Home
☐ Other

Supports
☐ Informal
☐ Other
☐ Requires more support
☐ None

Caregiver Relationship
☐ Spouse
☐ Sibling
☐ Offspring
☐ Other

Caregiver Stress
☐ None
☐ Low
☐ Moderate
☐ High

Caregiver Occupation:

Advance directive in place: ☐ Yes ☐ No
CPR decision: ☐ Allow a natural death ☐ Resuscitate

Assessor: .....
(Name, Grade & Signature)

Date: .....

Geriatric Assessment Form

APPENDIX A

Associated Medication (mark meds started in hospital with an asterisk) – consider Stopp Start		
Medication	**Dose**	**Date Commenced**

	Problem List	Action Required	Action By
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

	Long term conditions
1	
2	
3	
4	
5	

Notes

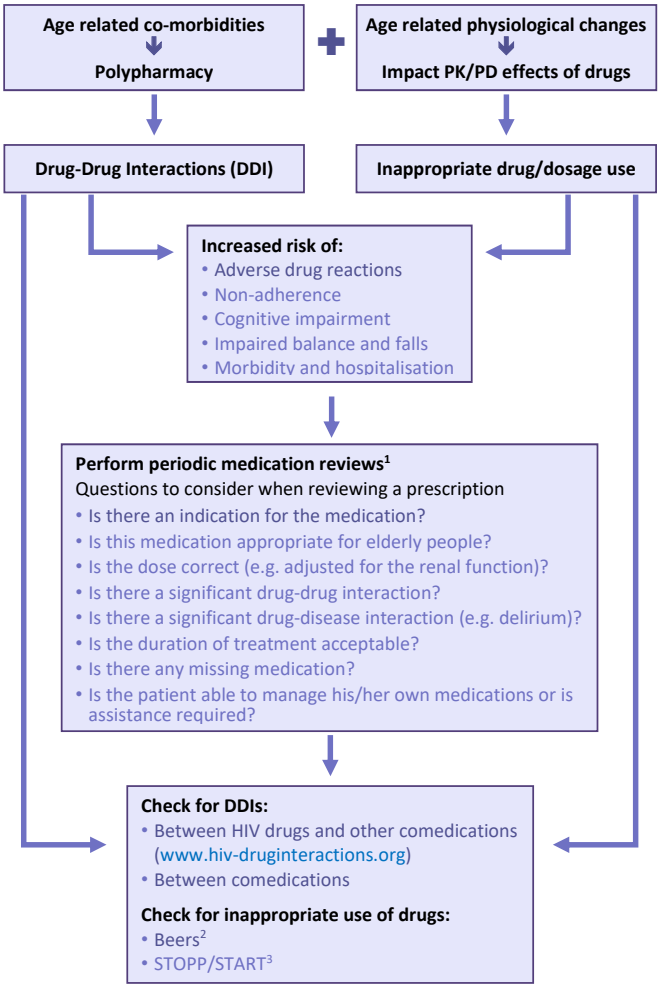
☐ For MDT Discussion consider long CGA ☐ Long CGA **not** required, copy of Clinical Frailty score to GP

Outpatient Appointments	
Department	Date and Time

Assessor .....
(Name, Grade & Signature)
Date .....

APPENDIX B

Stop/Start Criteria



*The **Beers** and **STOPP** criteria are tools established by experts in geriatric pharmacotherapy to detect and reduce the burden of inappropriate prescribing in elderly. Inappropriate medicines include:*

- *Those which in elderly persons with certain diseases can lead to drug-disease interactions.*
- *Those associated with a higher risk of adverse drug reactions in the elderly.*
- *Those that predictably increase the risk of falls in the elderly.*
- *Those to be avoided in case of organ dysfunction.*

*The **START** criteria consist of evidence-based indicators of potential prescribing omission in elderly with specific medical conditions.*

References

1. Reconsidering medication appropriateness for patients late in life. Holmes HM et al. *Arch Intern Med*, 2006, 166(6): 605-9
2. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. American Geriatrics Society 2015 Beers Criteria Update Expert Panel. *J Am Geriatr Soc*, 2015, 63(11):2227-46
3. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. O'Mahony D et al. *Age Aging*, 2015, 44(2):213-8.

Barthel Index of Activities of Daily Living

Instructions: Choose the scoring point for the statement that most closely corresponds to the patient's current level of ability for each of the following 10 items. Record actual, not potential, functioning. Information can be obtained from the patient's self-report, from a separate party who is familiar with the patient's abilities (such as a relative), or from observation. Refer to the Guidelines section on the following page for detailed information on scoring and interpretation.

The Barthel Index

Bowels
0 = incontinent (or needs to be given enemata)
1 = occasional accident (once/week)
2 = continent
Patient's Score: _____

Bladder
0 = incontinent, or catheterized and unable to manage
1 = occasional accident (max. once per 24 hours)
2 = continent (for over 7 days)
Patient's Score: _____

Grooming
0 = needs help with personal care
1 = independent face/hair/teeth/shaving (implements provided)
Patient's Score: _____

Toilet use
0 = dependent
1 = needs some help, but can do something alone
2 = independent (on and off, dressing, wiping)
Patient's Score: _____

Feeding
0 = unable
1 = needs help cutting, spreading butter, etc.
2 = independent (food provided within reach)
Patient's Score: _____

Transfer
0 = unable – no sitting balance
1 = major help (one or two people, physical), can sit
2 = minor help (verbal or physical)
3 = independent
Patient's Score: _____

Mobility
0 = immobile
1 = wheelchair independent, including corners, etc.
2 = walks with help of one person (verbal or physical)
3 = independent (but may use any aid, e.g., stick)
Patient's Score: _____

Dressing
0 = dependent
1 = needs help, but can do about half unaided
2 = independent (including buttons, zips, laces, etc.)
Patient's Score: _____

Stairs
0 = unable
1 = needs help (verbal, physical, carrying aid)
2 = independent up and down
Patient's Score: _____

Bathing
0 = dependent
1 = independent (or in shower)
Patient's Score: _____

Total Score: _____

(Collin et al., 1988)

Scoring:

Sum the patient's scores for each item. Total possible scores range from 0 – 20, with lower scores indicating increased disability. If used to measure improvement after rehabilitation, changes of more than two points in the total score reflect a probable genuine change, and change on one item from fully dependent to independent is also likely to be reliable.

Sources:

- Collin C, Wade DT, Davies S, Horne V. The Barthel ADL Index: a reliability study. *Int Disabil Stud*. 1988;10(2):61-63.
- Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. *Md State Med J*. 1965;14:61-65.
- Wade DT, Collin C. The Barthel ADL Index: a standard measure of physical disability? *Int Disabil Stud*. 1988;10(2):64-67.

Bladder Diary

Input/Output Chart

Please enter information for **three consecutive days**

DATE	/ / DAY ONE				/ / DAY TWO				/ / DAY THREE			
	TYPE	IN	OUT	WET	TYPE	IN	OUT	WET	TYPE	IN	OUT	WET
06.00												
07.00												
08.00												
09.00												
10.00												
11.00												
12.00												
13.00												
14.00												
15.00												
16.00												
17.00												
18.00												
19.00												
20.00												
21.00												
22.00												
23.00												
00.00												
01.00												
02.00												
03.00												
04.00												
05.00												
TOTAL		IN	OUT			IN	OUT			IN	OUT	

Hospital Anxiety & Depression Scale (HADS) assessment

Please read each item and place a tick in the box opposite the reply closest to how you have been feeling in the past month. Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought-out response.

I feel tense / wound up

Most of the time	
A lot of the time	
Occasionally	
Not at all	

I feel as if I am slowed down

Nearly all the time	
Very often	
Sometimes	
Not at all	

I enjoy the things I used to

Definitely as much	
Not quite as much	
Only a little	
Hardly at all	

I have lost interest in my appearance

Definitely	
I don't take as much care as I should	
I may not take quite as much care	
I take just as much care as ever	

I get frightened feelings like 'butterflies' in my stomach

Not at all	
Occasionally	
Quite often	
Very often	

I get frightened feelings as if something awful is going to happen

Definitely and quite badly	
Not too badly	
Definitely not so much	
Not at all	

I can laugh and see the funny side of things

As much as I ever could	
Not quite so much now	
Definitely not so much	
Not at all	

I feel restless as if I have to be on the move

Very much indeed	
Quite a lot	
Not very much	
Not at all	

Hospital Anxiety and Depression Scale (HADS)

Worrying thoughts go through my head

A great deal of the time	
A lot of the time	
From time to time	
Only occasionally	

I look forward with enjoyment to things

As much as I ever did	
Rather less than I used to	
Definitely less than I used to	
Hardly at all	

I feel cheerful

Not at all	
Not often	
Sometimes	
Most of the time	

I get a sudden feeling of panic

Very often indeed	
Quite often	
Not very often	
Not at all	

I can sit at ease and feel relaxed

Definitely	
Usually	
Not often	
Not at all	

I can enjoy a good book, radio or TV programme

Often	
Sometimes	
Not often	
Very seldom	

Scores: A = D =

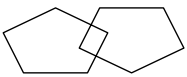
0 - 7 *Non-case / probable absence*
8 - 10 *Borderline / probable presence*
> 11 *Case / probable presence ie referral*

Acta Psychiatrica Scandanavica (1983) 67: 361 - 370

Mini-Mental State Examination (MMSE)

Patient's Name: _____ Date: _____

Instructions: ***Ask the questions in the order listed. Score one point for each correct response within each question or activity.***

Maximum Score	Patient's Score	Questions
5		"What is the year? Season? Date? Day of the week? Month?"
5		"Where are we now: State? County? Town/city? Hospital? Floor?"
3		The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response is used for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials: _____
5		"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, …) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W)
3		"Earlier I told you the names of three things. Can you tell me what those were?"
2		Show the patient two simple objects, such as a wristwatch and a pencil, and ask the patient to name them.
1		"Repeat the phrase: 'No ifs, ands, or buts.'"
3		"Take the paper in your right hand, fold it in half, and put it on the floor." (The examiner gives the patient a piece of blank paper.)
1		"Please read this and do what it says." (Written instruction is "Close your eyes.")
1		"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)
1		"Please copy this picture." (The examiner gives the patient a blank piece of paper and asks him/her to draw the symbol below. All 10 angles must be present and two must intersect.) 
30		TOTAL

(Adapted from Rovner & Folstein, 1987)

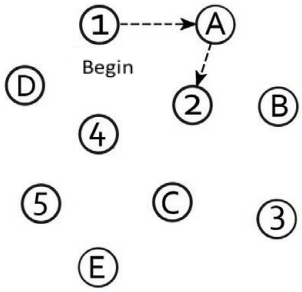
Cognitive Assessment (MOCA)

MONTREAL COGNITIVE ASSESSMENT (MoCA®)

Version 8.3 English

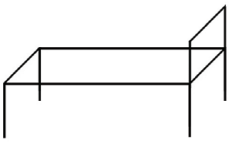
Name:
Education: Date of birth :
Sex: DATE :

VISUOSPATIAL / EXECUTIVE



[ ]

Copy bed



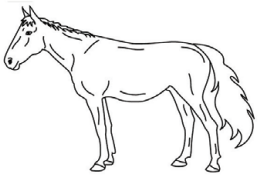
[ ]

Draw CLOCK (Five past ten)
(3 points)

[ ] Contour [ ] Numbers [ ] Hands

POINTS __/5

NAMING



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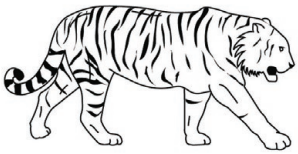

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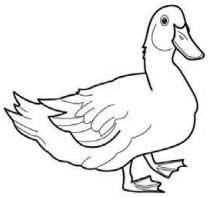


[ ]

__/3

MEMORY

Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	LEG	COTTON	SCHOOL	TOMATO	WHITE
1st TRIAL					
2nd TRIAL					

NO POINTS

ATTENTION

Read list of digits (1 digit/sec.). Subject has to repeat them in the forward order. [ ] 2 4 8 1 5

Subject has to repeat them in the backward order. [ ] 4 2 7

__/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors.

[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

__/1

Serial 7 subtraction starting at 60. [ ] 53 [ ] 46 [ ] 39 [ ] 32 [ ] 25

4 or 5 correct subtractions: **3 pts,** 2 or 3 correct: **2 pts,** 1 correct: **1 pt,** 0 correct: **0 pt**

__/3

LANGUAGE

Repeat: The child walked his dog in the park after midnight. [ ]

The artist finished his painting at the right moment for the exhibition. [ ]

__/2

Language Fluency. Name maximum number of words in one minute that begin with the letter B. [ ] _____ (N ≥ 11 words)

__/1

ABSTRACTION

Similarity between e.g. banana - orange = fruit [ ] hammer - screwdriver [ ] matches - lamp

__/2

DELAYED RECALL

Memory Index Score (MIS)

(MIS)	Has to recall words WITH NO CUE	LEG	COTTON	SCHOOL	TOMATO	WHITE	Points for UNCUED recall only
X3		[ ]	[ ]	[ ]	[ ]	[ ]	
X2	Category cue						MIS = ____/15
X1	Multiple choice cue						

__/5

ORIENTATION

[ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

__/6

www.mocatest.org

MIS: /15
(Normal ≥ 26/30)

Add 1 point if ≤ 12 yr education

TOTAL __/30

Administered by: _____

Training and Certification are required to ensure accuracy.

Malnutrition Universal Screening Tool (MUST)

APPENDIX H

BAPEN
www.bapen.org.uk

Step 1 + Step 2 + Step 3

Step 1 — BMI score

BMI kg/m²	Score
>20 (>30 Obese)	= 0
18.5-20	= 1
<18.5	= 2

Step 2 — Weight loss score

Unplanned weight loss in past 3-6 months

%	Score
<5	= 0
5-10	= 1
>10	= 2

Step 3 — Acute disease effect score

If patient is acutely ill **and** there has been or is likely to be no nutritional intake for >5 days
Score 2

If unable to obtain height and weight, see reverse for alternative measurements and use of subjective criteria

Acute disease effect is unlikely to apply outside hospital. See 'MUST' Explanatory Booklet for further information

Step 4

Overall risk of malnutrition

Add Scores together to calculate overall risk of malnutrition
Score 0 Low Risk Score 1 Medium Risk Score 2 or more High Risk

Step 5

Management guidelines

0 Low Risk

Routine clinical care

- Repeat screening
  Hospital – weekly
  Care Homes – monthly
  Community – annually
  for special groups
  e.g. those >75 yrs

1 Medium Risk

Observe

- Document dietary intake for 3 days
- If adequate – little concern and repeat screening
  - Hospital – weekly
  - Care Home – at least monthly
  - Community – at least every 2-3 months
- If inadequate – clinical concern – follow local policy, set goals, improve and increase overall nutritional intake, monitor and review care plan regularly

2 or more High Risk

Treat*

- Refer to dietitian, Nutritional Support Team or implement local policy
- Set goals, improve and increase overall nutritional intake
- Monitor and review care plan
  Hospital – weekly
  Care Home – monthly Community – monthly

* Unless detrimental or no benefit is expected from nutritional support e.g. imminent death.

All risk categories:

- Treat underlying condition and provide help and advice on food choices, eating and drinking when necessary.
- Record malnutrition risk category.
- Record need for special diets and follow local policy.

Obesity:

- Record presence of obesity. For those with underlying conditions, these are generally controlled before the treatment of obesity.

The Confusion Assessment Method (CAM)

Patient's name: _____

Date of birth: _____/_____/_____

Hospital number: _____

Feature 1 Acute onset and fluctuating course

This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions:

1. *Is there evidence of an acute change in mental status from the patient's baseline?*
2. *Did the (abnormal) behaviour fluctuate during the day, that is, tend to come and go, or increase or decrease in severity?*

Feature 2 Inattention

This feature is usually obtained by interacting with the patient, but may also be reported by family members or staff and is shown by a positive response to the following question:

3. *Did the patient have difficulty focusing attention, for example being easily distractible or having difficulty keeping track of what was being said?*

Feature 3 Disorganised thinking

This feature is usually obtained by interacting with the patient, but may also be reported by family members or staff and is shown by a positive response to the following question:

4. *'Was the patient's thinking disorganised or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?'*

Feature 4 Altered level of consciousness

This feature is obtained by observing the patient and is shown by any answer other than 'alert' to the following question:

5. *Overall, how would you rate this patient's level of consciousness?*
   - *Alert (normal)*
   - *Vigilant (hyperalert)*
   - *Lethargic (drowsy, easily aroused)*
   - *Stupor (difficult to arouse)*
   - *Coma (unarousable)*

Scoring the test *(please tick as appropriate)*

	Positive	Negative
Feature 1		
Feature 2		
Feature 3		
Feature 4		

Clinical Frailty Scale

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being "slowed up", and/or being tired during the day.

5 Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 Terminally Ill – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia,** recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia,** they cannot do personal care without help.

PRISMA-7 Questionnaire

PATIENT QUESTIONS		
1. **Are you older than 85 years?**	Yes ☐	No ☐
2. **Are you male?**	Yes ☐	No ☐
3. **In general, do you have any health problems that require you to limit your activities?**	Yes ☐	No ☐
4. **Do you need someone to help you on a regular basis?**	Yes ☐	No ☐
5. **In general, do you have any health problems that require you to stay at home?**	Yes ☐	No ☐
6. **If you need help, can you count on someone close to you?**	Yes ☐	No ☐
7. **Do you regularly use a stick, walker or wheelchair to move about?**	Yes ☐	No ☐
Total checked:	_____	_____

Instructions:

- For questions 3 through 7, do not interpret the answer; simply note the person's answer without considering whether or not it should be "yes" or "no".
- If the respondent hesitates between "yes" and "no", ask him/her to choose one of the two answers.
- If, despite several attempts, he/she persists in answering "a little" or "at times", enter "yes".

SCORING: If the respondent had 3 or more "yes" answers, this indicates an increased risk of frailty and the need for further clinical review.

Reference:

Raîche, M., R. Hébert, M-F. Dubois, and the PRISMA partners. User guide for the PRISMA-7 questionnaire to identify elderly people with severe loss of autonomy. In Integrated service delivery to ensure persons' functional autonomy, ed. R. Hébert, A. Tourigny, and M. Gagnon, 147-65. Quebec: Edisem.

PRISMA (Program of Research on Integration of Services for the Maintenance of Autonomy) is funded by the Canadian Health Services Research Foundation in partnership with the "Fonds de la Recherche en Santé du Québec". For more information, see www.prisma-qc.ca.

Web Links

AGE UK

www.ageuk.org.uk

www.ageuk.org.uk/information-advice/health-wellbeing/mind-body/10-tips-for-ageing-better

BRITISH GERIATRICS SOCIETY

www.bgs.org.uk

NHS ENGLAND, A PRACTICAL GUIDE TO HEALTHY AGEING

www.england.nhs.uk/wp-content/uploads/2015/09/hlthy-ageing-brochr.pdf

LIVERPOOL UNIVERSITY HIV DRUG INTERACTIONS WEBSITE

www.hiv-druginteractions.org

HIV AND AGEING INFORMATION

www.aidsmap.com

www.i-base.info

www.natap.org

www.aahivm.org/hivandageingforum

www.thebody.com

JUSTRI

www.justri.org/coming-of-age
(in many languages)

www.justripatientpassport.com

www.justrislide.com

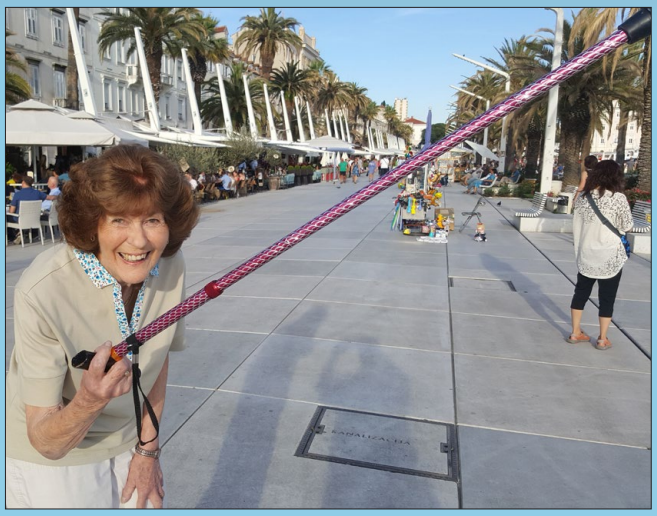
About the Authors

Dr Mike Youle has worked in HIV since 1986, devoting his entire career to the clinical care of HIV patients and research to further that end. He is the Director of HIV Clinical Research at London's Royal Free Hospital. He founded JUSTRI (www.justri.org) in 2010, an educational not-for-profit which educates and provides resources to improve HIV, viral hepatitis and tuberculosis treatment and care, including 'Coming of Age' – a guide to ageing well with HIV.

Prof Juliet Wright is an honorary consultant in Elderly Medicine at Brighton and Sussex University Hospital, where she contributes to the acute frailty service. She has a clinical and research interest in HIV in older people. Alongside Prof Martin Fisher, she established the Silver Clinic for older people living with HIV. She has supervised two PhDs in in the field, one assessing frailty and the second investigating the barriers and facilitators to testing for HIV in older patients.

Dr Tom Levett is a Senior Lecturer in Medicine and Frailty at Brighton and Sussex University, with a research interest in HIV and ageing. He completed a PhD investigating frailty in older adults living with HIV. Additionally, he is an honorary consultant in Elderly Medicine at the Brighton and Sussex University Hospital, where he contributes to acute frailty services.

Dr Tristan Barber is an HIV specialist working at the Royal Free Hospital, London UK. He has a research background in phase 3 antiretroviral studies and HIV-related neurocognitive impairment. He is Chair of the BASHH HIV Specialist Interest Group and also chairs the BHIVA International Partnerships Working Group. He is currently developing a bespoke frailty service for those ageing with HIV infection.



dedicated to

Joyce Edith Youle

6th September 1930—11th October 2018

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