

HIV Medicine for Geriatricians and Geriatric Medicine for HIV Clinicians

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Royal Free London NHS Foundation Trust



CARE OF HIV AND AGEING
IMPLEMENTATION NETWORK

Relevant Declarations

The Sage Clinic at the Royal Free Hospital was initially supported by two unrestricted grants from Gilead Sciences

HIV Medicine for Geriatricians

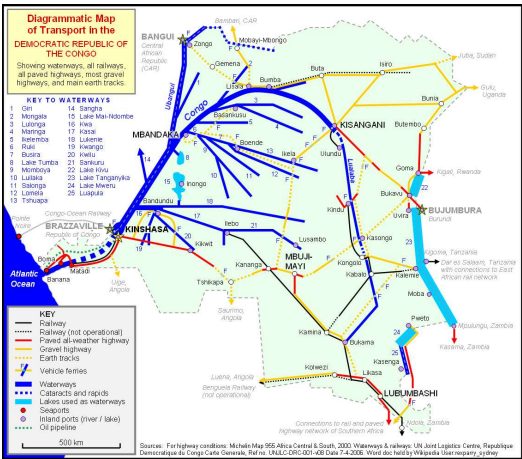
Before 1996

1996 - 2005

2005 - 2015

After 2015

Before 1996



RE INFECTED... AND IT'S GETTING WORSE

Britain threatened by gay virus plague

Correspondent
S virus is
t the rate
s a day in

'Killer blood' tests ordered at donor centres

New curb on AIDS peril

Hospitals
using
killer
blood

about
penses?

REAGAN'S
FURY AS
PLO BOSS
SLIPS NET

I'D SHOOT MY SON IF HE
HAD AIDS, SAYS VICAR!

TV Star
falls for
pale are
worth
a mint!



He would pull trigger
on rest of family, too

FREE
FILM
\$2.29



News of the World investigates the

MY DOOM

AIDS IS THE WRATH OF GOD, SAYS VICAR

Ex-ballet
boss is





Zidovudine

Azidothymidine

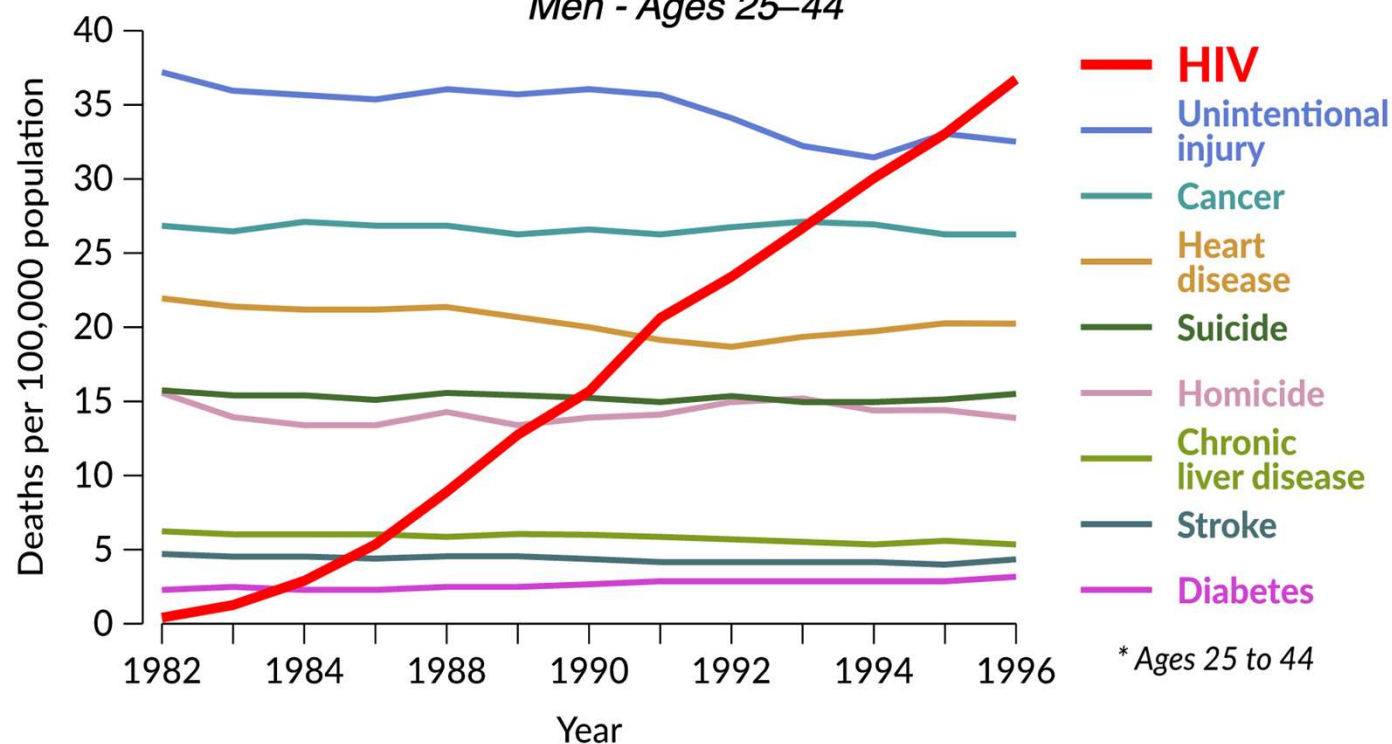
AZT

Retrovir



USA – Trends in Annual Rates of Death

Men - Ages 25–44



US-CDC, 1997







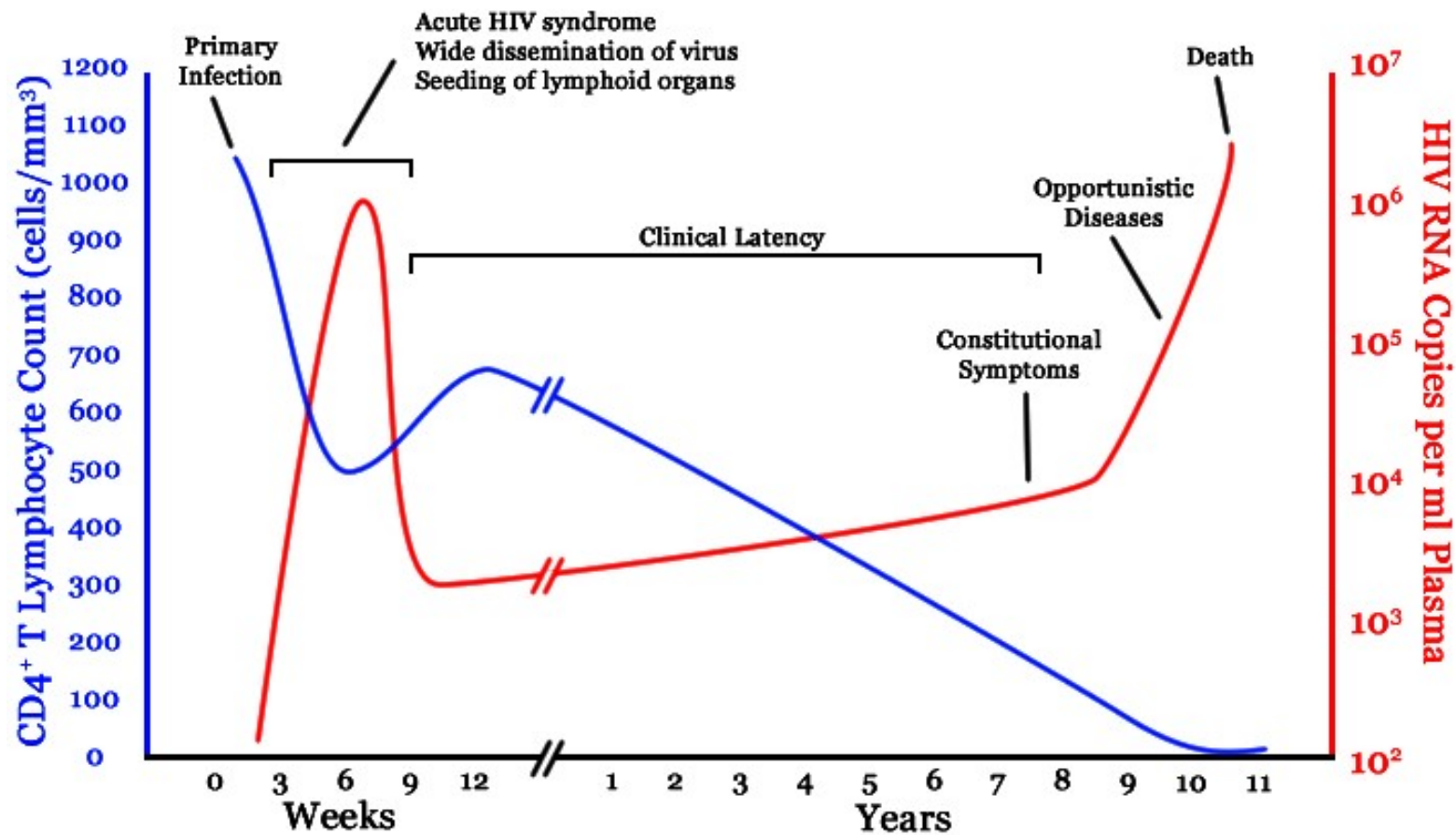
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1996 - 2005



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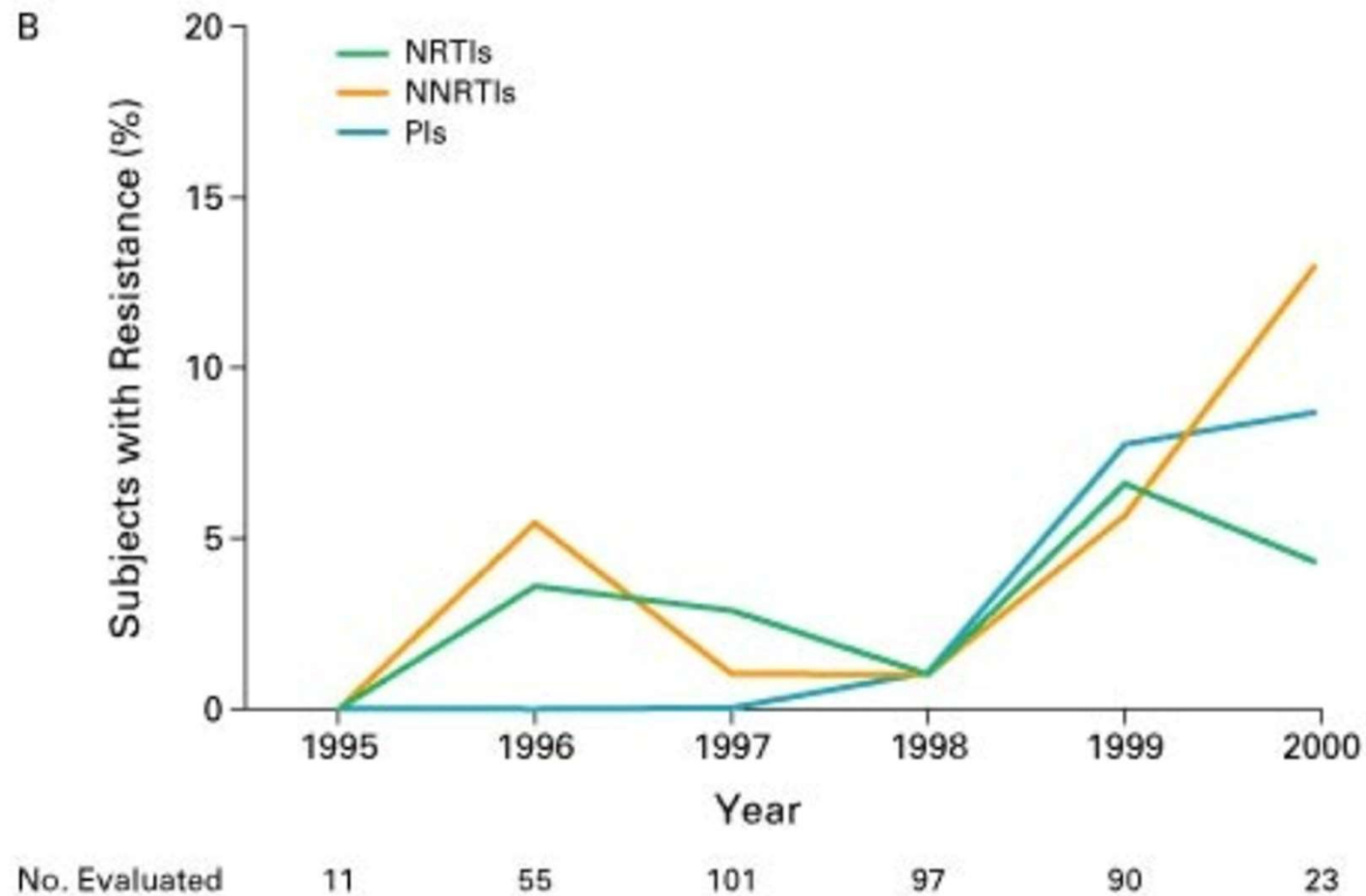


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2020

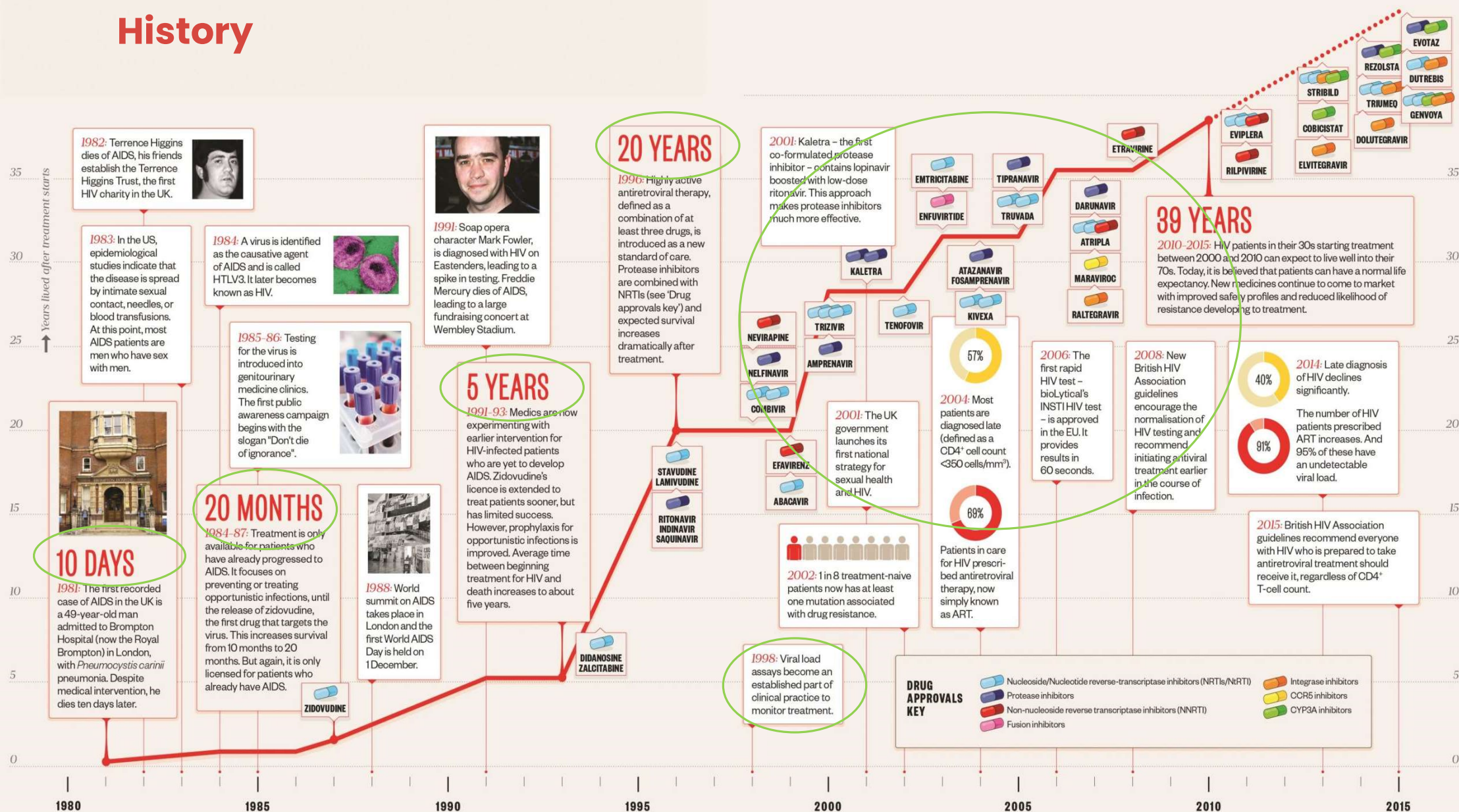






2005 - 2015

History





CHAIN  **UKI**

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U=U*

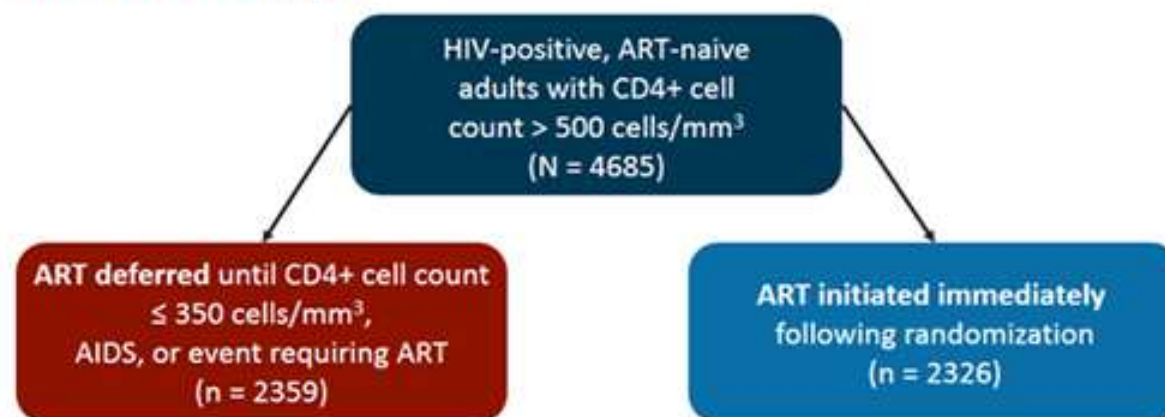
**UNDETECTABLE
viral load means HIV IS
UNTRANSMITTABLE**

www.i-Base.info/u-equals-u

* Undetectable = Untransmittable

After 2015

INSIGHT START *Study Design*



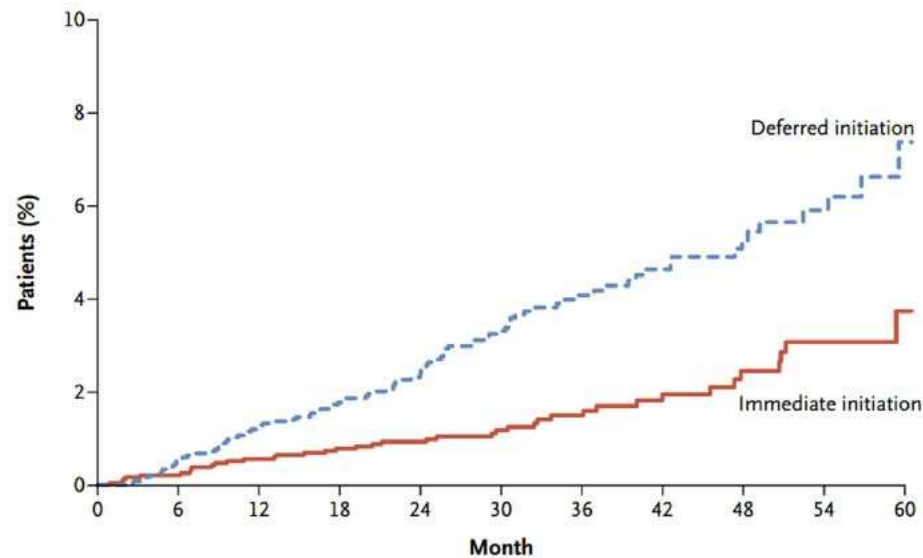
- Primary end point: any serious AIDS-related (AIDS-related death or AIDS-defining event) or non-AIDS-related event (non-AIDS-related death, CVD, end-stage renal disease, decompensated liver disease, non-AIDS-defining cancer)
- Mean follow-up: 3 years
- Median baseline CD4+ cell count: 651 cells/mm³

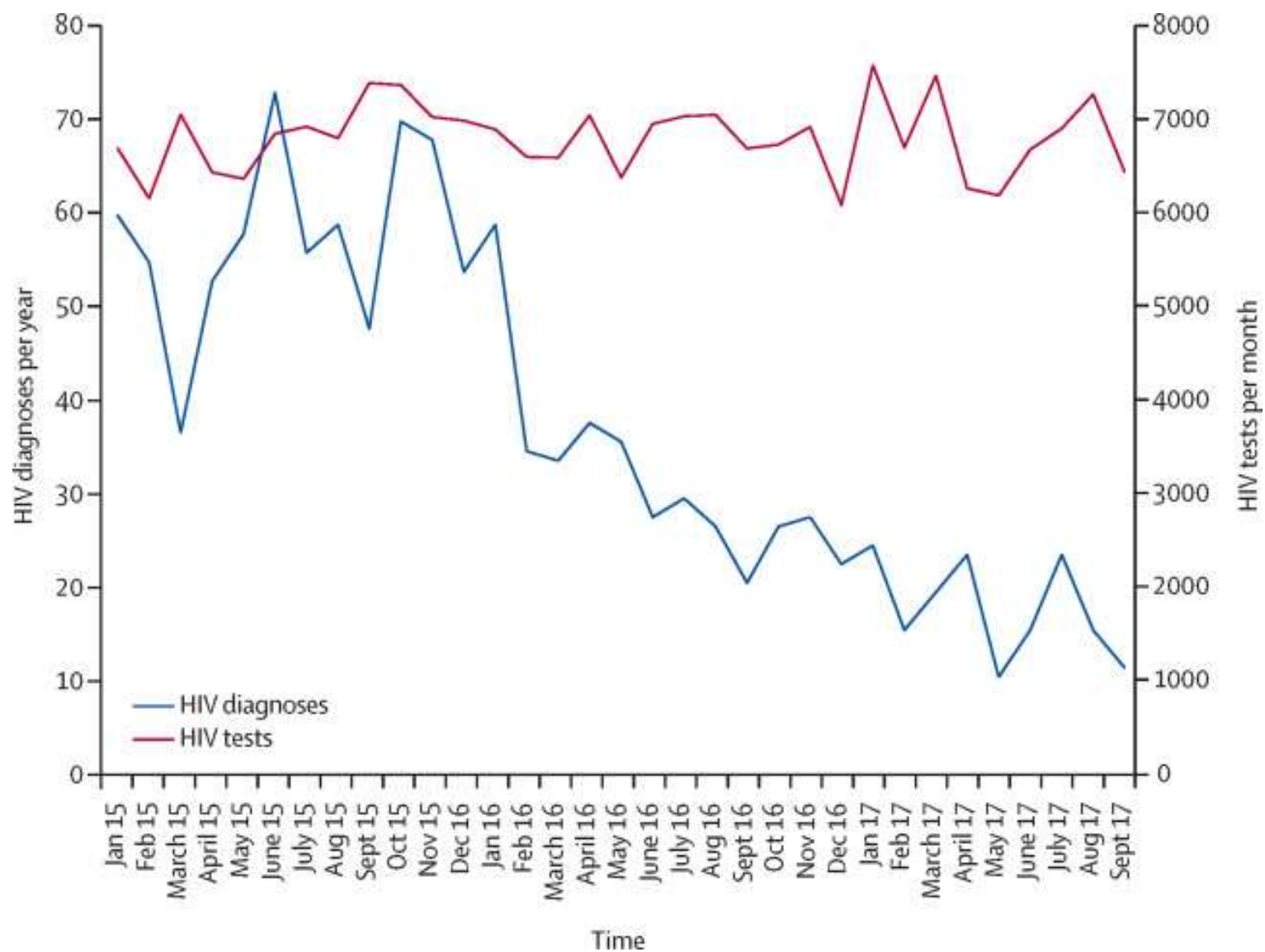
INSIGHT START Study Group, et al. *N Engl J Med*. 2015;373:795-807.

START Study

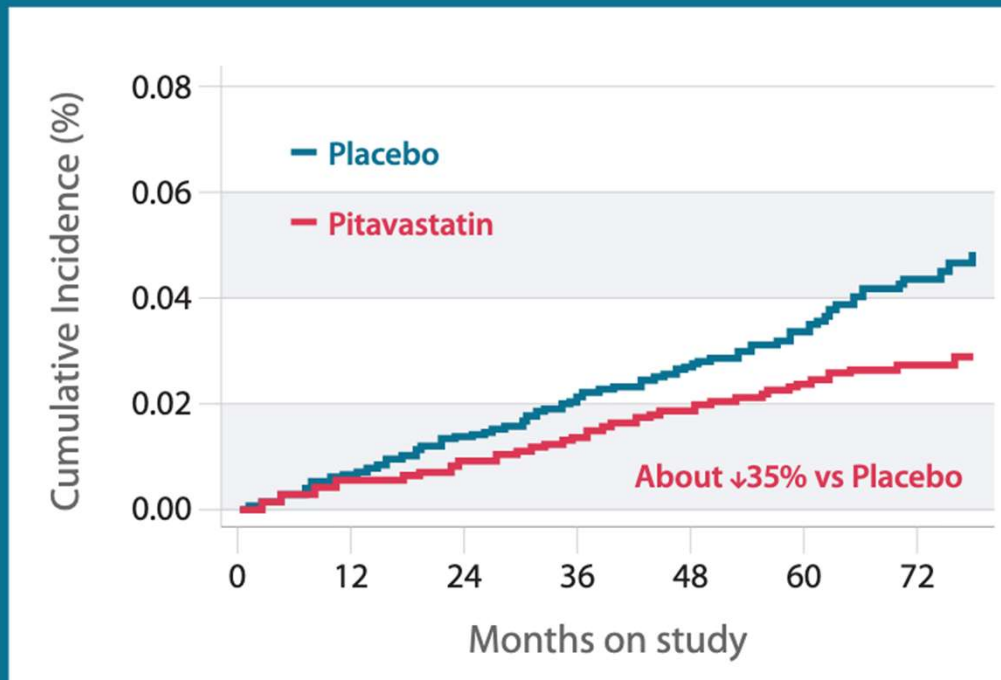
Initiation of ART in Early Asymptomatic HIV Infection

57% reduction in serious AIDS- or non-AIDS-related events including death





Time to major adverse cardiovascular event (like first heart attack or stroke)



Pitavastatin reduced the incidence of the primary endpoint, major adverse cardiovascular events (MACE), by 35% compared to placebo over an average of approximately 5 years of follow up.



REPRIEVE

Randomized Trial to Prevent Vascular Events in HIV

Drug Developments

- Move to two from three drug therapies
- Longer acting – orals and injectables
- Cure approaches
 - Sterilising
 - Functional

What you need to know now

- Early diagnosis, and continuous ART, can normalise life expectancy
- Some age related conditions, including cardiovascular disease and some cancers, may occur early or with greater severity
 - Possibly driven by inflammation
- Some of the drugs have interactions, and polypharmacy is more common with age
- How long someone has been living with HIV affects mental, physical, and socioeconomic health, as well as historical reliance on dedicated HIV services

Geriatric Medicine for HIV Clinicians

Increasing older people living with HIV

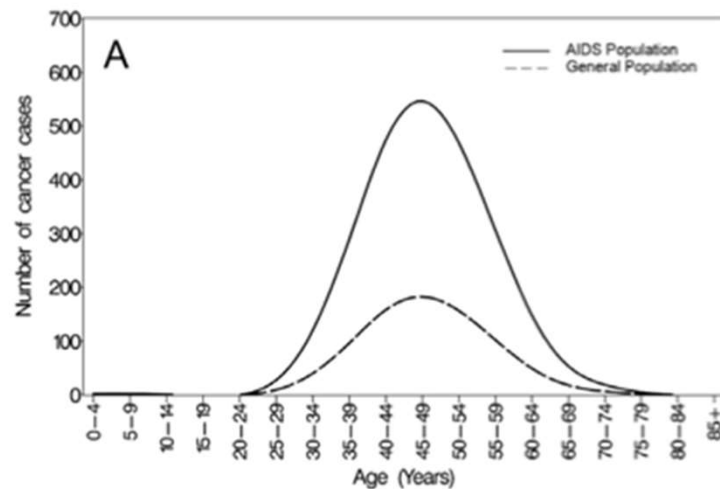
- By 2030 70% of people living with HIV in the Europe and the USA are expected to be over 50 years old¹
- The average age of people living with HIV is increasing because of²:
 - increasing access to effective antiretroviral therapy
 - improved management of coinfections
 - improved management of comorbidities
 - increased rate of new cases in older people (1 in 6 cases in Europe are in someone aged 50+)
- Those ageing with HIV demonstrate an accentuated ageing process with²:
 - higher rates of multimorbidity
 - higher rates of frailty
 - worse quality of life

¹Wing 2016; ²Jones et al. 2022

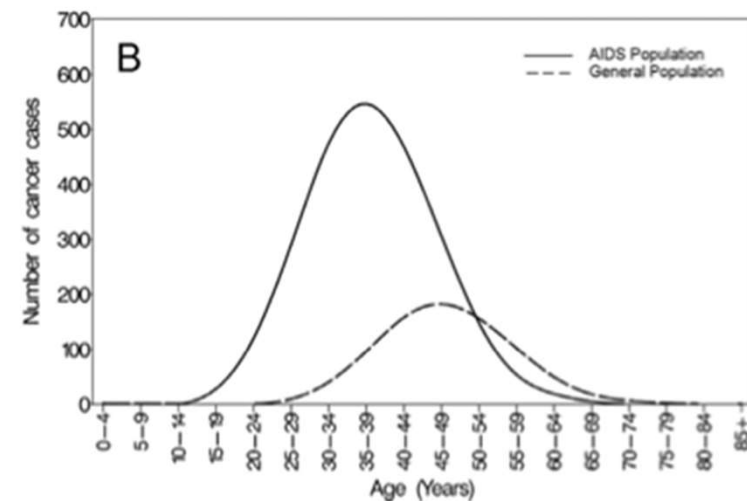
HIV and Ageing

- Chronological Age
- Functional Age
- HIV Age

Accentuated or Accelerated Ageing?



Accentuated Ageing: cancer (and geriatric syndromes) occur at the same ages, but more often among HIV-infected participants than among HIV-uninfected comparators. This configures a **premature ageing process**.



Accelerated Ageing and accentuated ageing: cancer (and geriatric syndromes) occur earlier among HIV-infected participants compared with HIV-uninfected comparators, and there are more cancer events.

Frailty

- Frailty is defined as “a state of decreased homeostatic reserve resulting in increased vulnerability to endogenous and exogenous stressors and an increased risk of negative outcomes”¹
- Frailty is associated with mortality in people living with HIV²
- Women living with HIV more likely develop frailty leading to worse physical function and quality of life³

¹Fried et al. 2001; ²Verheij et al. 2020; ³Branas et al. 2020

Frailty Transitions

- Frailty is a dynamic process
- One study reported that 7.5% of participants transitioned from frail to robust and 8.4% contrariwise during follow-up¹
- Another reported it was infrequent for people to go directly between robust and frail in either direction (<0.8%)²
- Most transition via the prefrail category highlighting this group as an important target for intervention²

¹Piggott et al. 2020; ²Verheij et al. 2021

Guidelines

- Frailty is included in the European AIDS Clinical Society (EACS) Guidelines¹
- The 'fourth 95' by UNAIDS proposing that more than 95% of people living with HIV should have good health-related quality of life highlights the importance of frailty
- Role of joint HIV and Geriatrics guidelines?

Frailty in the Context of Ageing

Frailty defines age-related exhaustion of homeostatic reserves. An individual with frailty is exposed to enhanced vulnerability to stressors, and associated risk of negative health-related outcomes. This geriatric syndrome, comprising biological, psychological and social issues is more prevalent than expected in PLWH compared to HIV-negative matched controls [24]. The most common instruments to measure frailty include the Frailty Phenotype [25] and Frailty Index [26]

Feature	Frailty Phenotype	Frailty Index
Clinical definition	Based on presence of signs, symptoms (pre-disability syndrome)	Based on presence of diseases, disabilities (accumulation of deficits)
How to assess	Assessed by five specific features [25]: 1. self-reported weight loss (a) 2. self-reported exhaustion (b) 3. low levels of physical activity as measured by Minnesota Leisure physical activity questionnaire (c) 4. measured 4 m walk speed time (d) 5. measured grip strength (e)	A frailty index is calculated based on the number of health deficits out of > 30 assessed health deficits [26] Health variables, including signs and symptoms of disease, laboratory measures, and self-reported data Data routinely collected in medical records can be included if they characterise age-related, acquired health deficits which cover a range of physiologic systems
How to interpret	Categorical variables Total score of 5 items: 0 deficits = fit 1-2 deficits = pre-frail 3 + deficits = frail	Continuous variables Index ranges from 0 to 1: > 0.25 = fit 0.25 - 0.4 = frail > 0.4 = most frail
How to address frailty [27]	Promote Comprehensive Geriatric Assessment (CGA), aimed at personalising interventions according to benefits/priorities for a given person through a multidisciplinary diagnostic and treatment process, that identifies medical, psychosocial, and functional limitations aimed at maximising overall health with ageing and the improvement of quality of life	
Recommendations [28], [29]	In PLWH who are frail: 1. Sustain and recover physical function impairment and sarcopenia prescribing physical activity with a resistance training component 2. Address polypharmacy by reducing or deprescribing any inappropriate/superfluous medications, see Prescribing in Elderly PLWH 3. Screen for, and address modifiable causes of fatigue 4. For PLWH exhibiting unintentional weight loss, screen for reversible causes and consider food fortification and protein/caloric supplementation 5. Prescribe vitamin D for individuals deficient in vitamin D, see page 62	

Prevalence¹

- A systematic review aiming to identify this was presented at the American Geriatrics Society 2021 Virtual Scientific Meeting²
- It includes 26 studies (6584 cases) of people over 50 years living with HIV who were assessed for frailty using the FFP
- A pooled prevalence of 10.9% for frailty and 47.2% for prefrailty
- This is comparable with 11% and 42% of community dwelling older adults without HIV
- Heterogeneity between studies was high making comparison challenging

¹Jones et al. 2022; ²Yamada et al 2021

Prevalence

Table 1. Studies in 2020–2021 with the primary aim of establishing the prevalence of frailty in people living with HIV in high-income and upper-middle-income countries

Authors	Country	Frailty diagnosis	Sample size (n)	HIV+ (%)	Male (%)	Average age (mean) [median]	Prevalence of frailty (%)	Prevalence of prefrailty (%)
Allavena <i>et al.</i> [20]	France	FFP	510	100	81.4	[73]	13.5	63.2
Bernaud <i>et al.</i> [21]	France	'Simplified geriatric evaluation'	51	100	74.5	[78.7]	3.9	21.6
Flor de Lima <i>et al.</i> [22]	Portugal	FFP	200	100	60	[53]	15	57
Lellouche <i>et al.</i> [23]	France	FFP	192	100	NR	NR	5.7	57.3
Lima <i>et al.</i> [24]	Brazil	FFP	30	100	90	(41)	70	30
McMillan <i>et al.</i> [25 ^{***}]	Canada	FI	389	100	85	(61.1)	15	NR
Montaño-Castellón <i>et al.</i> [26]	Brazil	FFP	231	100	58.9	[45.6]	10.4	52.4
Piggott <i>et al.</i> [27 [■]]	USA	FFP	1353	33	66.6	(48)	4.3	NR
Salguero <i>et al.</i> [28]	USA	FRAIL scale	40	37.5	48	[43]	45	10
Tan <i>et al.</i> [29]	USA	FFP	1265	100	0	[53]	12.4	55.6
Tsakona <i>et al.</i> [30]	Greece	EuroQol and BIPQ	212	100	NR	NR	5.8	14.6%
Verheij <i>et al.</i> [31 ^{***}]	Netherlands	FFP	497	100	89	[53.3]	11.1	52.4%

BIPQ, Brief Illness Perception Questionnaire; EuroQol, European Quality of Life Scale; FFP, Fried Frailty Phenotype; FI, Frailty Index; NR, not reported.

Prevalence

Table 2. Studies in 2020–2021 with the primary aim of establishing the prevalence of frailty in people living with HIV in sub-Saharan Africa

Authors	Country	Frailty diagnosis	Sample size (n)	HIV+ (%)	Male (%)	Average age (mean) [median]	Prevalence of frailty in HIV+	Prevalence of prefrailty in HIV+ (%)
Bristow <i>et al.</i> [32 ^a]	Tanzania	FFP, CFS, B-FIT 2	145	100	33	[56]	FFP: 2.8% CFS: 0.7% B-FIT 2: 0.7%	FFP: 46.2
Edwards <i>et al.</i> [34]	South Africa	Modified FFP (excluding weight loss)	614	47.6	37.5	[64]	17.7%	66.5
Vecchio <i>et al.</i> [33]	Uganda	FFP	55	100	47	(44)	19%	NR

B-FIT 2, Brief Frailty Instrument for Tanzania; CFS, Clinical Frailty Scale; FFP, Fried Frailty Phenotype; NR, not reported.

Screening for Frailty in people living with HIV

- EACS advocates for either the FFP or use of a Frailty Index though provides no further guidance on how to apply these¹
- Whilst HIV clinicians are aware of the importance of identifying frailty the use of a validated tool was seen to do this was deemed less important which may stem from a lack of consensus regarding the optimal tool²
- A universally applicable HIV-specific Frailty Index is not available, though adaptations of an Italian Frailty Index for people living with HIV could be used³

¹EACS 2023; ²Boffito et al 2020; ³Guaraldi et al. 2015

Fried Frailty Phenotype

- Most used diagnostic tool in the context of HIV is the Fried Frailty Phenotype (FFP) (Fried et al. 2001):
 - It was designed to identify frailty to aid mortality prediction
 - It utilizes five domains:
 - Unintentional weight loss
 - Exhaustion
 - Low physical activity
 - Slow walking speed
 - Low grip strength
- | | Scores |
|--|------------------|
| | 0 = Robust |
| | 1-2 = Prefrailty |
| | 3-5 = Frailty |
- A limitation is it requires formal measurement of gait speed and grip strength which can limit use in clinic

Modified FFP Used at the Royal Free Hospital



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Frailty assessment

Local adapted version of the Fried Frailty Score [13]

In the last 12 months have you noticed any of the following?

- | | | |
|---|----------------------------------|---------------------------------|
| 1. Inability to grip with hands (e.g. opening a jam jar) | ☐ Yes (1) | ☐ No (0) |
| 2. Unexpected decrease (loss) of weight that's worrying you | ☐ Yes (1) | ☐ No (0) |
| 3. A slower walking pace than usual | ☐ Yes (1) | ☐ No (0) |
| 4. Not feeling full of energy most days of the week | ☐ Yes (1) | ☐ No (0) |
| 5. Being less or much less active compared with someone who spends 2 h on most days on activities such as walking, gardening, household chores or do-it-yourself projects | ☐ Yes (1) | ☐ No (0) |
- Total frailty score: _____

Clinical Frailty Scale (CFS)

- Most used screening tool in geriatrics
- Canadian study by McMillan et al. 2021
- n=143, 88% men, mean age 57
- Compared the prevalence of frailty in a group of people living with HIV using the Clinical Frailty Scale (CFS) [commonly used in Canada/UK] to the FFP
- Prevalence:
 - 14% by CFS
 - 15% by FFP
- The CFS is easy to use with no need for additional measurements
- In general population only validated in people over 65 years



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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.

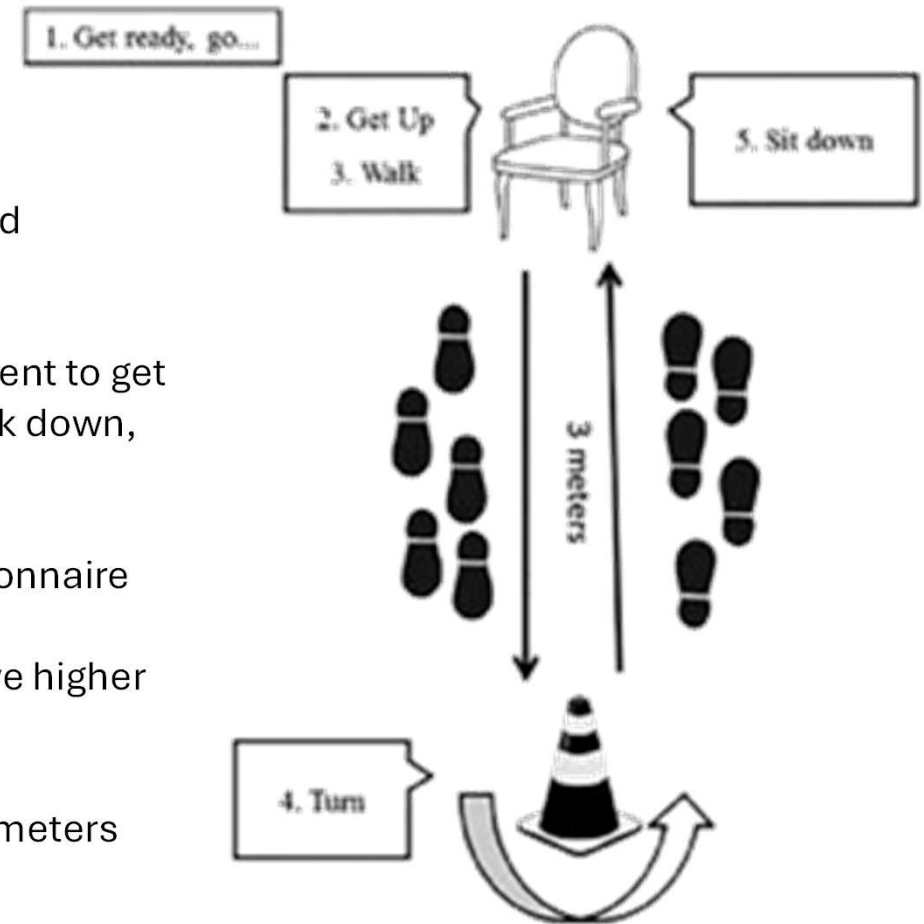
* 1. Canadian Study on Health & Aging. Revised 2008.

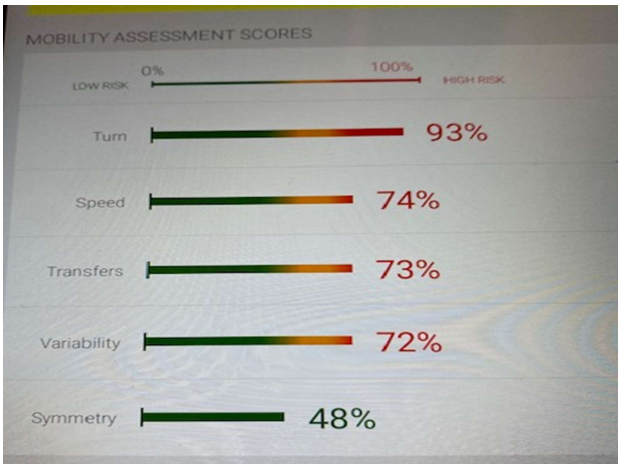
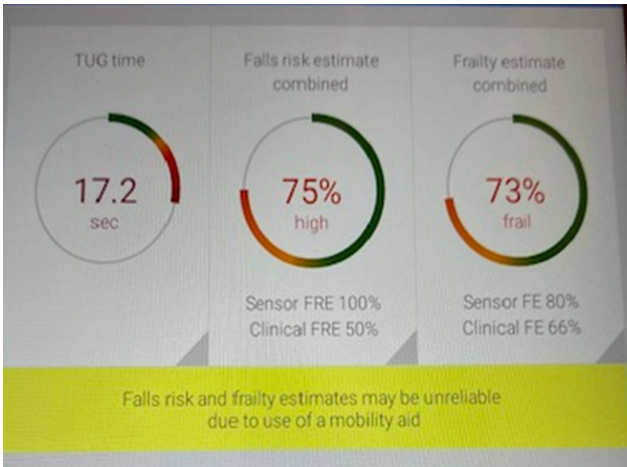
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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Timed Up and Go (TUG)

- UK study by Beanland et al. 2021
- n=80, 80% men, median age 56 years
- Assessed frailty using Timed-up-and-go test (TUG) (Podsiadlo and Richardson, 1991)
- The TUG is a valid and reliable test that is carried by asking a patient to get up from a chair, walk to a point 3m away, turn around and sit back down, with a time of more than 13.5 s being abnormal
- Prevalence of frailty was 33% versus 20% by self reported questionnaire
- Individuals who take longer to perform it have been shown to have higher rates of frailty and falls
- Found to be an acceptable test and more related to clinical parameters than other subjective tools





Local QTUG Data

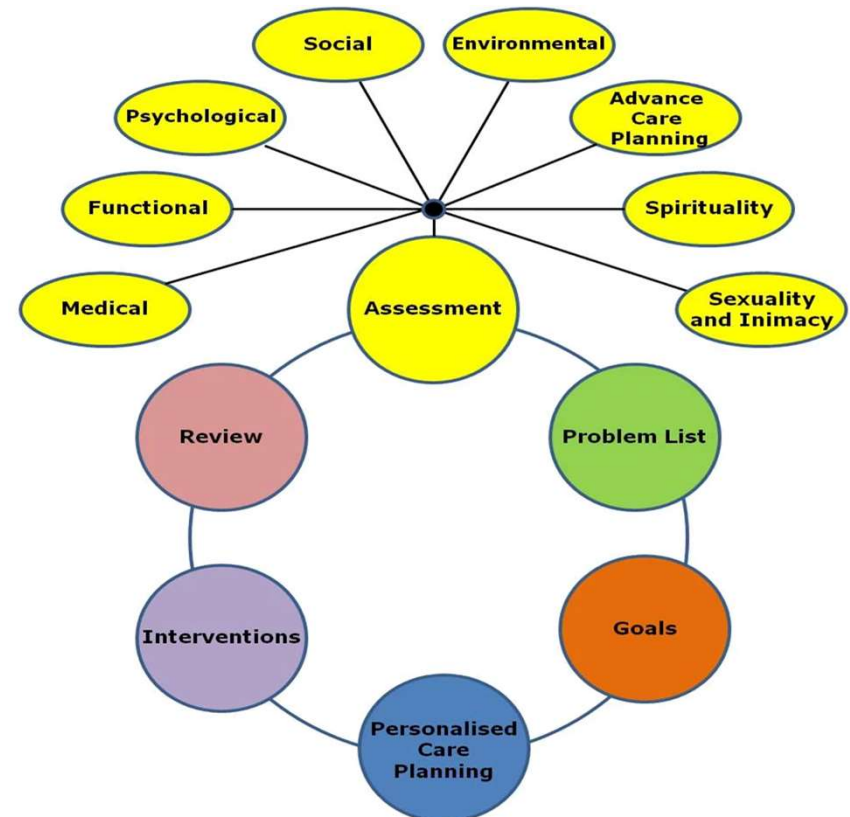
- From July 2023 to July 2024 160 people have been screened. 74% were men, median age 60 [IQR 10].
- In people age 60+ QTUG can be used to calculate the risk of falls and frailty.
- In our sample 86 people were aged 60+.
- The median frailty score was 34.70% [IQR 33.40] (not frail) with a median falls risk estimate of 42.46% [IQR 33.93] (low risk).

Falls Risk			Frailty Score		
Degree of Risk	Number Of People	Percentage	Degree of Frailty	Number Of People	Percentage
Low	51	59%	Non frail	59	69%
Medium	16	19%	Transitional	15	17%
High	18	21%	Frail	10	12%
Very High	1	1%	Very frail	2	2%

- Feedback from staff was mixed with 50% (n=6) feeling it should be continued with the time taken to perform the test and potential connectivity issues highlighted as barriers.
- All staff felt that service users found the intervention acceptable.
- Staff highlighted they were more likely to perform the test on people they perceived to be frail.

Comprehensive Geriatric Assessment (CGA)

- Comprehensive geriatric assessment (CGA) is a patient-centred, holistic assessment and management process used within Geriatric Medicine¹
- It was applied to people living with HIV in a retrospective US study (n=105, 73% men, mean age 66.5 years) identifying 60% as frail or prefrail²
- The most common patient goals being staying alive, maintaining health and financial stability²



¹Welsh et al. 2014; ²Siegler et al. 2021

The 5 Ms of Geriatrics

Mind	• Helping manage dementia • Helping treat and prevent delirium • Working to evaluate and treat depression
Mobility	• Maintaining the ability to walk and balance • Preventing falls
Medications	• Reducing polypharmacy through de-prescribing • Prescribing treatments exactly for an older person's needs
Multi-complexity	• Helping older adults manage a variety of health conditions • Assessing living conditions when they are impacted by age, health conditions, and social concerns
Matters Most	• Coordinating advance care planning • Helping manage goals of care by making sure that a person's individual goals, and care preferences are reflected in treatment plans

Views of Geriatricians

- Limited clinical studies
- None in UK (or Europe)
- 6 key barriers to involvement



Bespoke Services within HIV Care



Modena Metabolic Clinic

Golden Compass

Sage

Platinum

Chelsea and Westminster Ageing

Silver

Imperial NHS

Our experience

- The Ian Charelsen Day Centre (ICDC) at the Royal Free Hospital coordinates the care of approximately 3250 people living with HIV
- Over half are already over 50 with around 150 being over 70.
- The Sage Clinic was launched 2019 in support people living with HIV to age better



ORIGINAL RESEARCH

What problems associated with ageing are seen in a specialist service for older people living with HIV?

Howell T. Jones, Alim Samji, Nigel Cope, Joanne Williams, Leonie Swaden, Abhishek Katiyar, Fiona Burns, Aisha McClintock-Tiongco, Margaret Johnson, Tristan J. Barber ✉ ... See fewer authors ^

First published: 25 October 2021 | <https://doi.org/10.1111/hiv.13193>

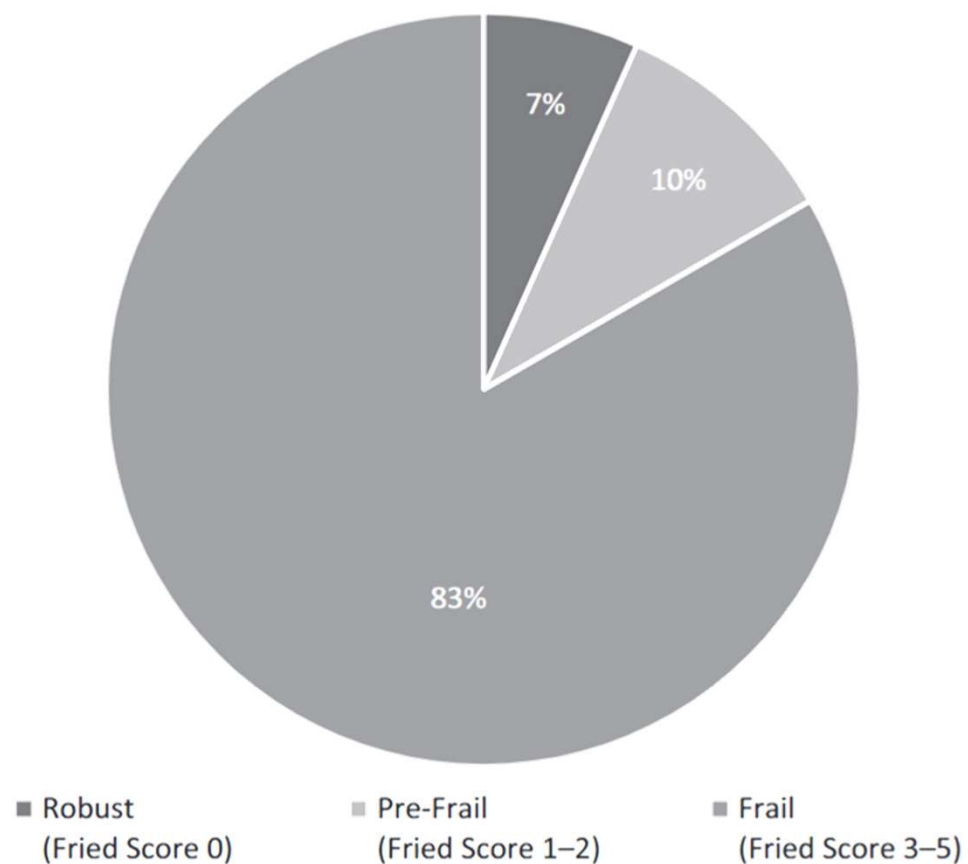


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Sage Clinic Multidisciplinary Team 2020

Our Experience (Jones et al 2021)



Clinical characteristics (n = 35)	Results
Age (years) [median (range)]	69 (53–93)
Male [n (%)]	27 (77)
White ethnicity [n (%)]	22 (63)
Identified sexuality [n (%)]	MSM: 18 (51) Heterosexual: 17 (49)
Time since HIV diagnosis (years) [median (range)]	22 (3–37)
Duration of ART (years) [median (range)]	21 (3–32)
Current ART-based regimen [n (%)]	NRTI: 29 (83) NNRTI: 8 (23) PI: 11 (31) INI: 21 (60) CCR5 antagonist: 2 (6)
HIV RNA < 40 copies/mL [n (%)]	34 (97)
Nadir CD4 (cells/μL) [median (IQR)]	74 (182)
Current CD4 (cells/μL) [median (IQR)]	477 (319)
CD4:CD8 ratio [median (IQR)]	0.8 (0.8)
Previous AIDS-defining condition [n (%)]	21 (60)

Our Experience (Jones et al 2021)

- Most common reported issues:
 - Mood
 - Memory
 - Falls
- Common 'hidden' issues:
 - Psychosexual issues e.g. Erectile dysfunction
 - Ageing as a member of a minority group especially as a gay/bisexual man

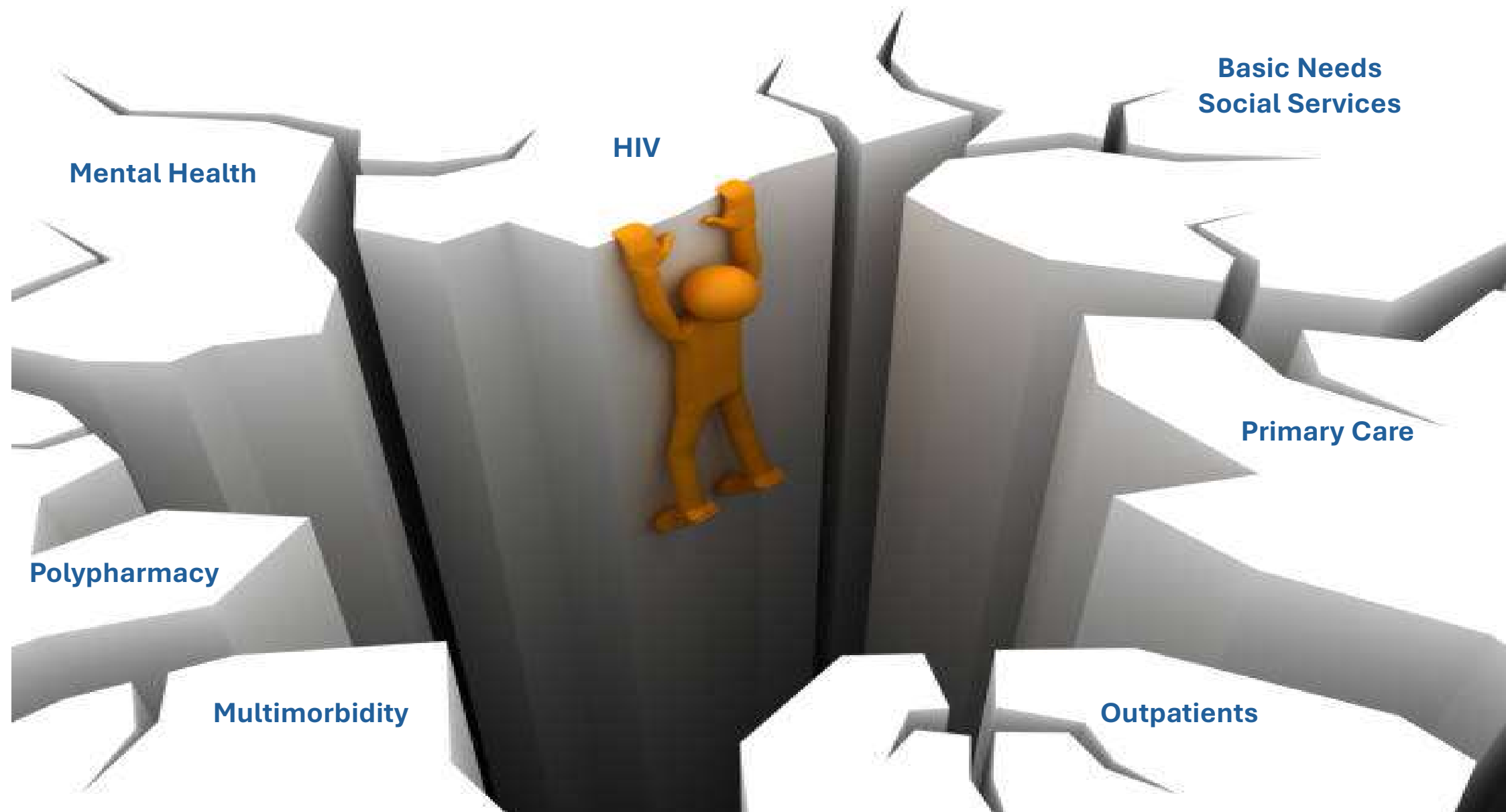
Issue	Number of patients (n = 35)	Percentage of patients (%)
Affective symptoms and depression	18	51
Memory loss	13	37
Falls	10	29
Urinary symptoms	9	26
Pain	8	23
Weight loss	7	20
Breathlessness	5	14
Bowel symptoms	5	14
Haematological problems	5	14
Anxiety	4	11
Isolation and loneliness	4	11
Alcohol use disorder	3	9
Modifiable polypharmacy	3	9
Financial insecurity	2	6
Smoking	2	6
Complications of diabetes mellitus	2	6
Visual symptoms and loss	1	3
Immigration issues	1	3

Feedback

- “...One thing I have sort of spin off illnesses from of HIV, well not necessarily always from HIV but I have had cancer and I have had illnesses that were probably related to HIV, like osteoporosis so excellent opportunity to discuss all these things and not just discuss them as single ... I feel like is the real benefit of a clinic like this, I feel like it’s a rare opportunity, actually to look it as a holistic picture.”
- “Brilliant, absolutely brilliant, very, it was very professional and very patient led, I would say, client-led, so I don’t feel like I was being put up on”
- “I mean it’s just excellent care, isn’t it? I’ve told other people about it and they say, ‘how can I get referred?’”

Community

- In 2024 we expanded the service into the community to meet the needs of people who are housebound or living in long term care facilities
- Coordinating the care of 20 people
- 3 transfers from other HIV services solely to access community care
- Liaising with other services e.g. GP, Social Worker, District Nurses etc
- Attending borough frailty hub meetings / community best interest meetings
- Emergency home visits
- Continuity of care when admitted to hospital



Mental Health

HIV

**Basic Needs
Social Services**

Primary Care

Polypharmacy

Multimorbidity

Outpatients

What you need to know now

1. Frailty in common and presents earlier in people living with HIV
2. People living with HIV aged 50+ should be screened for frailty at least annually
3. 1 in 10 people living with HIV aged 50+ is frail whilst 1 in 2 is pre-frail
4. HIV services must ensure strategies are in place to support those living with both HIV and frailty

Thank You!



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