

CROI<sub>2022</sub>

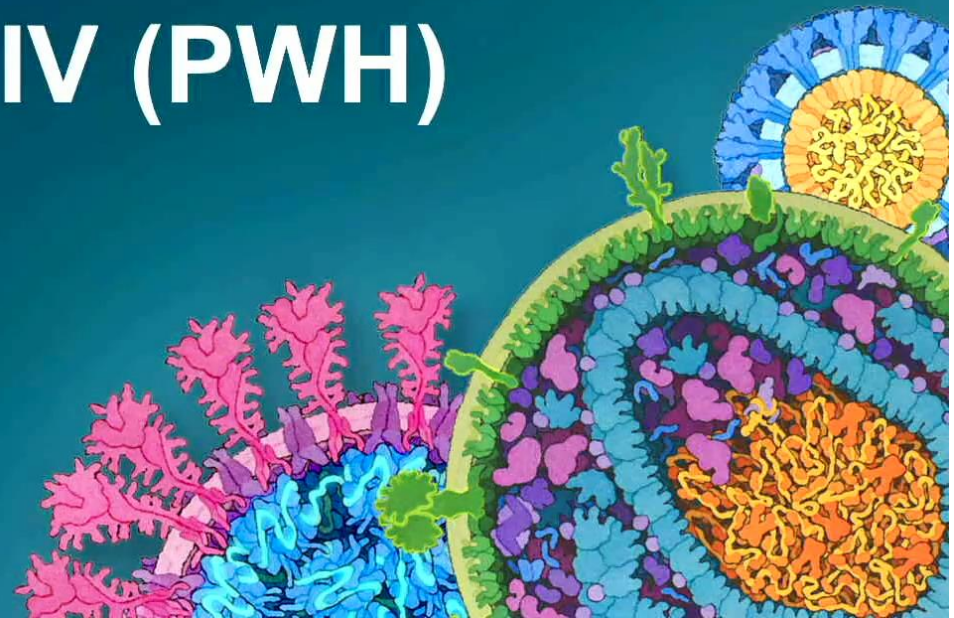


# ANTICHOLINERGIC MEDICATIONS ASSOCIATED WITH FALLS AND FRAILITY IN PEOPLE WITH HIV (PWH)

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*Guy's and St Thomas' Hospital  
London, United Kingdom*

*Disclosure:* None





POPPY

Pharmacokinetic and clinical  
observations in people over 50

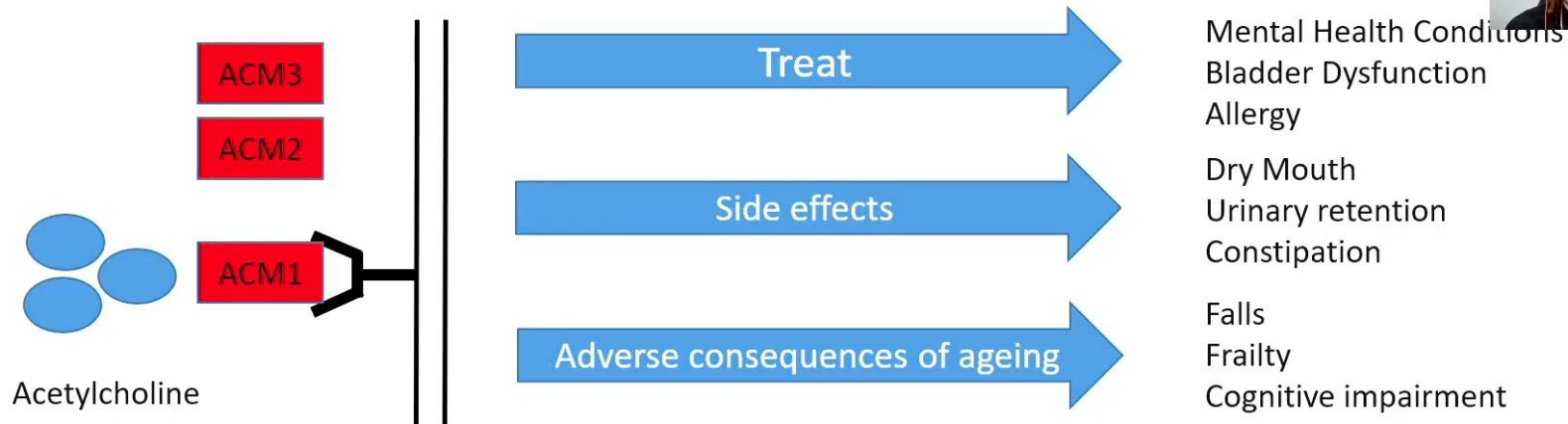


Jessica Doctor<sup>1</sup>, Alan Winston<sup>2</sup>, Jaime Vera<sup>3</sup>, Frank Post<sup>4</sup>, Marta Boffito<sup>5</sup>, Patrick W G Mallon<sup>6</sup>, Jane Anderson<sup>7</sup>, Margarita Durkina<sup>2</sup>, Ian Williams<sup>1</sup>, Margaret Johnson<sup>8</sup>, Emmanouil Bagkeris<sup>1</sup>, Memory Sachikonye<sup>9</sup>, Caroline A Sabin<sup>1</sup> for the POPPY Study.

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The POPPY Study Group

# Anticholinergic Medications (ACM)



Are PWH at risk of adverse consequences of aging secondary to ACM?

- Limited studies to date in PWH
- Prevalence 15-30% of ACM use
- Associations with neurocognitive dysfunction<sup>1</sup>

# Methods: The Poppy Study



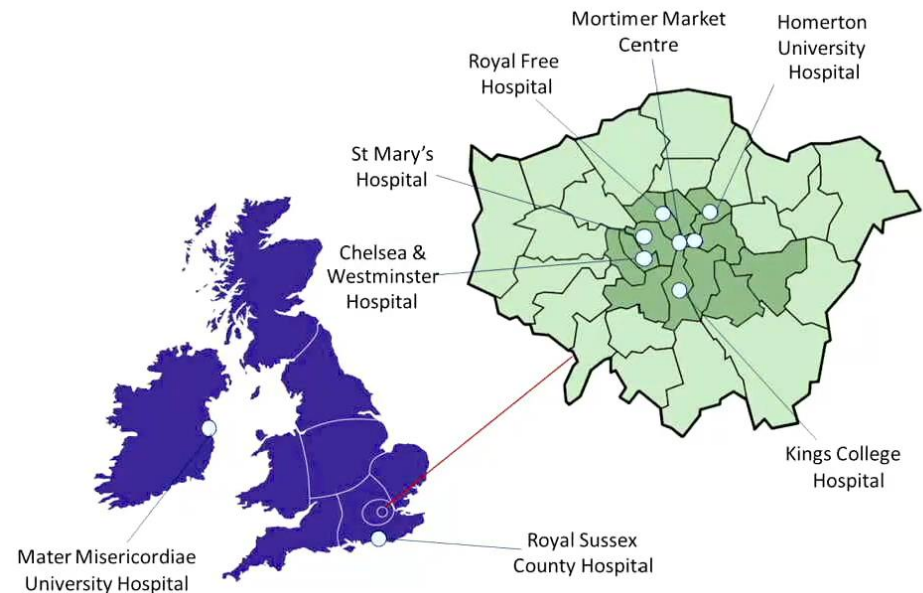
- Multi-centre cohort study to examine the effects of ageing on the clinical outcomes of people with HIV in the UK and Ireland
- Cohorts of older people with HIV (aged  $\geq 50$  years), younger people with HIV (aged  $< 50$  years) and older HIV-negative people ( $\geq 50$  years)

- Recruitment started in 2011

Baseline (visit 1): April 2013 – Jan 2016  
Year 1 (visit 2): May 2014 – Feb 2017  
Year 2 (visit 3): May 2015 – Feb 2018

- Data collected at baseline

Detailed medical history  
Cognitive function  
Dexa scan  
Bloods/urine

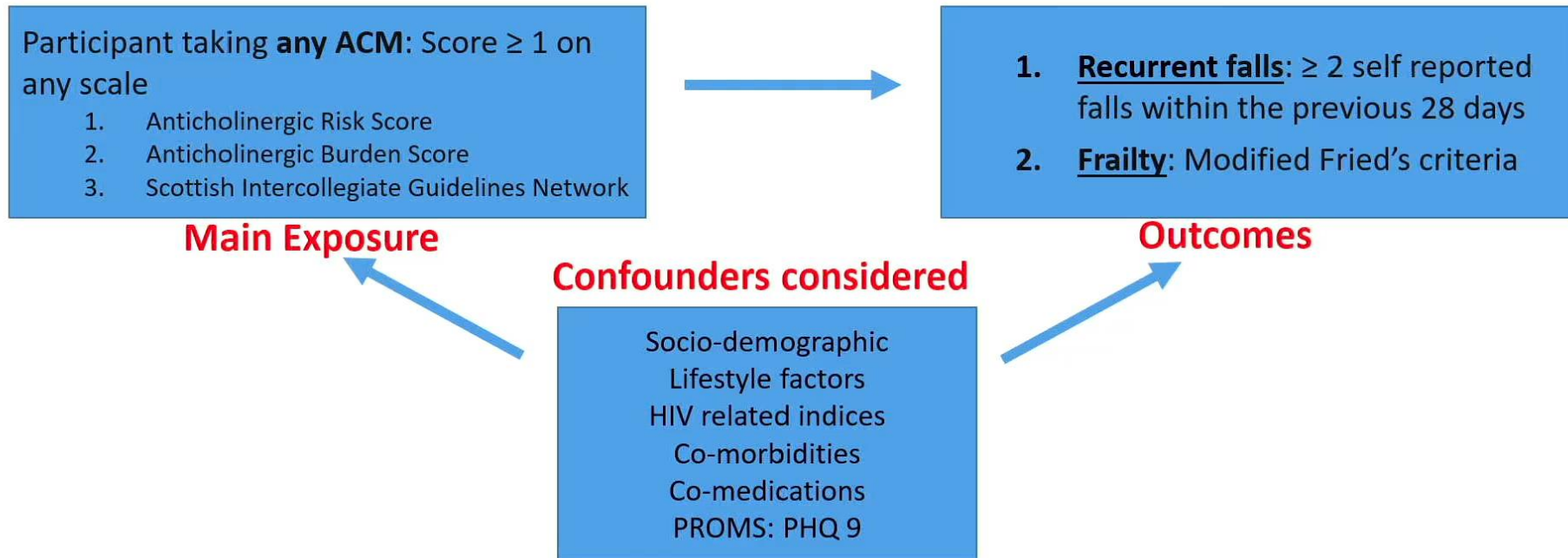




# Methods: Statistical Analysis



Cross-sectional analysis of data collected at study entry using **Stata version 16**



- 2 stage logistic regression**
1. Socio-demographic/lifestyle covariates which showed a significant association with exposure
  2. Co-morbidities, Co-medications, PROMS: PHQ-9 added in a stepwise manner

# Results

## Demographics of PWH ≥ 50

| Variable                       | N=699      |
|--------------------------------|------------|
| Age (median (IQR)), years      | 57 (53-62) |
| Male, n (%)                    | 612 (88)   |
| White, n (%)                   | 603 (86)   |
| Unemployed, n (%)              | 99 (14)    |
| High education, n (%)          | 479 (69)   |
| Rec drugs last 6 months, n (%) | 177 (25)   |

## Number of ACM prescribed

| ACM number     | Frequency n (%) |
|----------------|-----------------|
| 0              | 507 (73)        |
| 1              | 129 (18)        |
| ≥2 (maximum 9) | 63 (9)          |

ACM1

ACM2

ACM3



## Prevalence of outcome

9% (63/673) reported recurrent falls

32% (126/609) met frailty criteria



## Commonest ACM prescribed

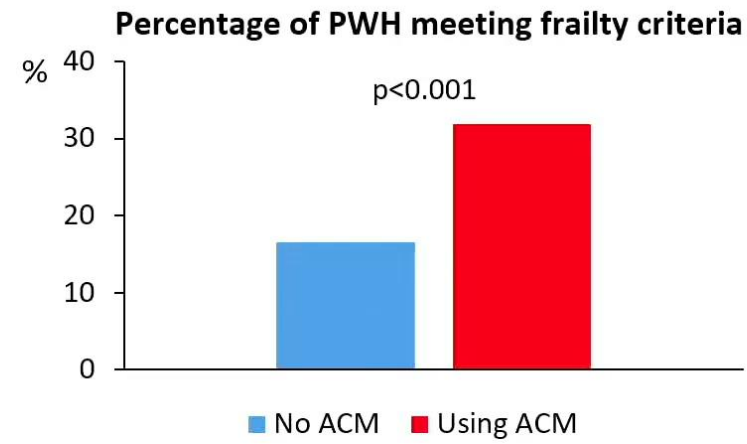
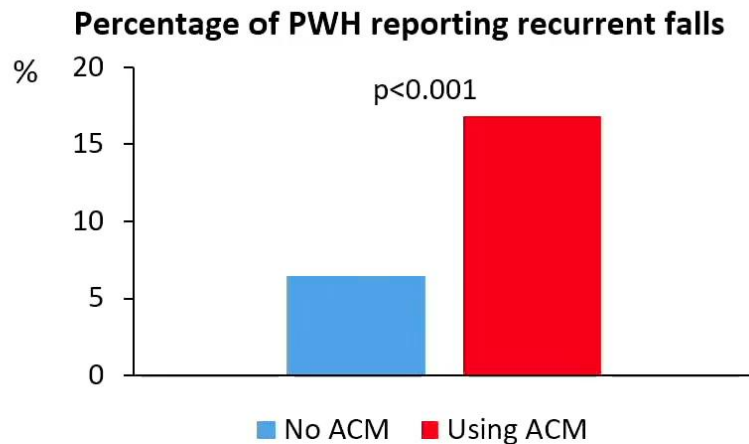
| ACM           | Frequency n (%) |
|---------------|-----------------|
| Codeine       | 36 (12)         |
| Citalopram    | 34 (12)         |
| Loperamide    | 25 (9)          |
| Amitriptyline | 21 (7)          |
| Diazepam      | 17 (6)          |
| Cetirizine    | 16 (5)          |

# Demographic and clinical factors



| Variable  | Prescribed an ACM |             | P value |
|---|-------------------|-------------|---------|
|   | No (n=506)        | Yes (n=193) |         |
| Age (median [IQR]), years                         | 57 (53-62)        | 56 (52-61)  | 0.56    |
| Male, n (%)                                       | 441 (87)          | 171 (89)    | 0.61    |
| Single, n (%)                                     | 301 (60)          | 134 (69)    | 0.01    |
| Unemployed, n (%)                                 | 67 (13)           | 32 (17)     | 0.05    |
| High education, n (%)                             | 348 (69)          | 131 (68)    | 0.82    |
| Rec drugs last 6 months, n (%)                    | 118 (23)          | 59 (31)     | 0.05    |
| Moderate severe/severe depressive symptoms, n (%) | 49 (10)           | 31 (16)     | 0.001   |
| Number of comorbidities (mean [SD])               | 2.76 (1.6)        | 4.19 (1.51) | <0.001  |
| Number of non ACM co-medications ( $\geq 5$ )     | 44 (9)            | 70 (36)     | <0.001  |

# Association between any ACM use and outcomes



## Final regression model of the association of using any ACM with recurrent falls and frailty

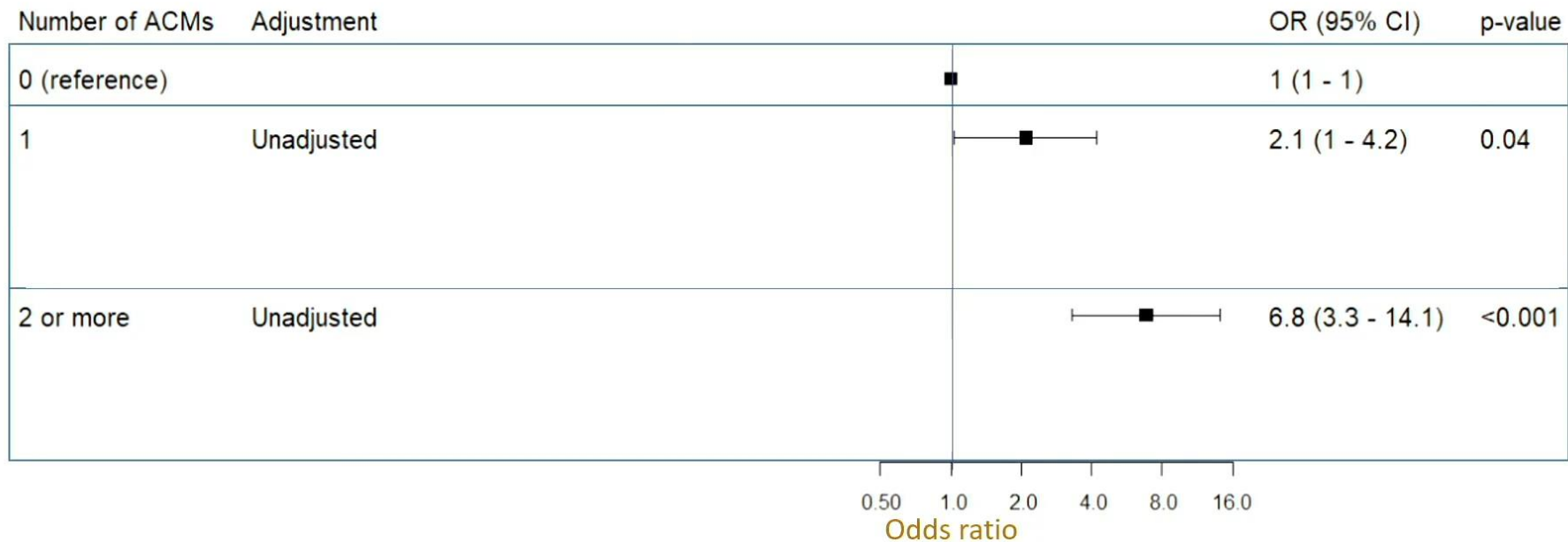
| Adjustment                                 | ACM  | Recurrent falls |           |         | Frailty |           |         |
|--|------|-----------------|-----------|---------|---------|-----------|---------|
|  |      | OR              | CI        | P value | OR      | CI        | P value |
| Unadjusted                                 | none | 1               | n/a       |         | 1       | n/a       |         |
|  | Any  | 3.3             | 1.9 - 5.9 | <0.001  | 2.3     | 1.5 - 3.6 | <0.001  |
| Demographic/lifestyle                      | Any  | 2.5             | 1.3 - 4.6 | 0.004   | 1.8     | 1.1 - 3.0 | 0.02    |
| Demographic/lifestyle and clinical factors | Any  | 1.9             | 0.9 - 4.0 | 0.08    | 1.7     | 0.9 - 3.0 | 0.08    |



# Is there a dose relationship?



## Association between number of ACM and recurrent falls



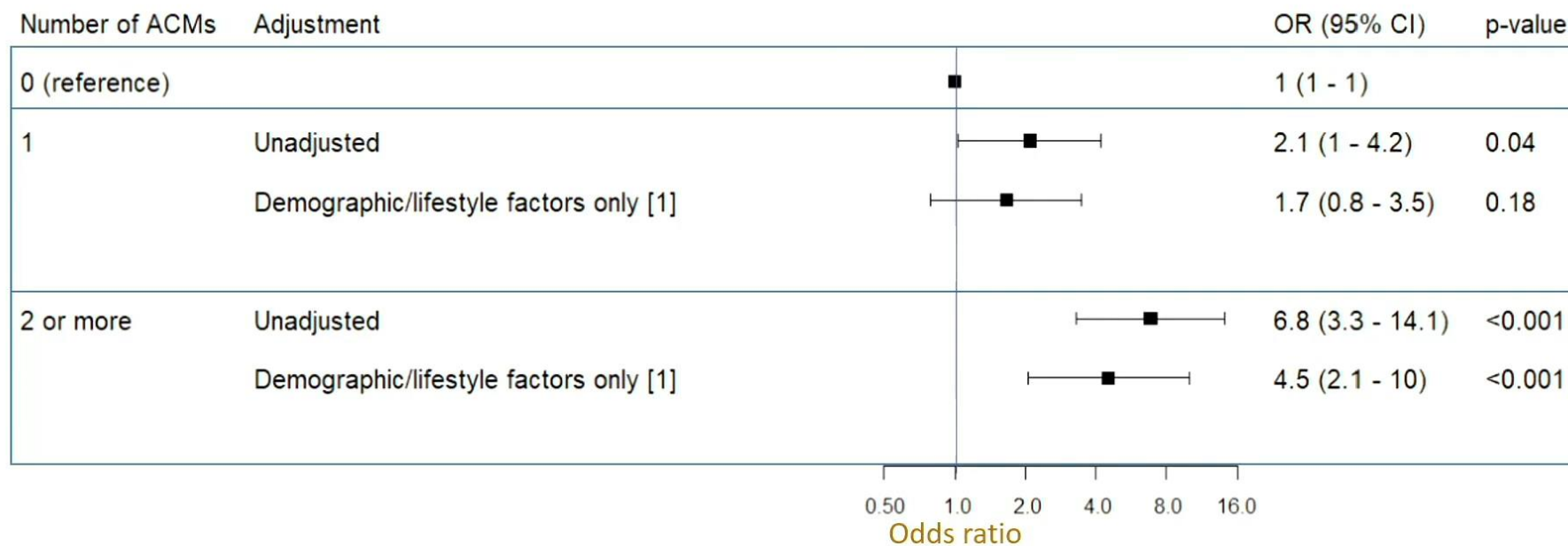
[1] age, work, marital status and recent recreational drug use

[2] additionally adjusted for number of non ACM co-medications, number of comorbidities and PHQ-9 score

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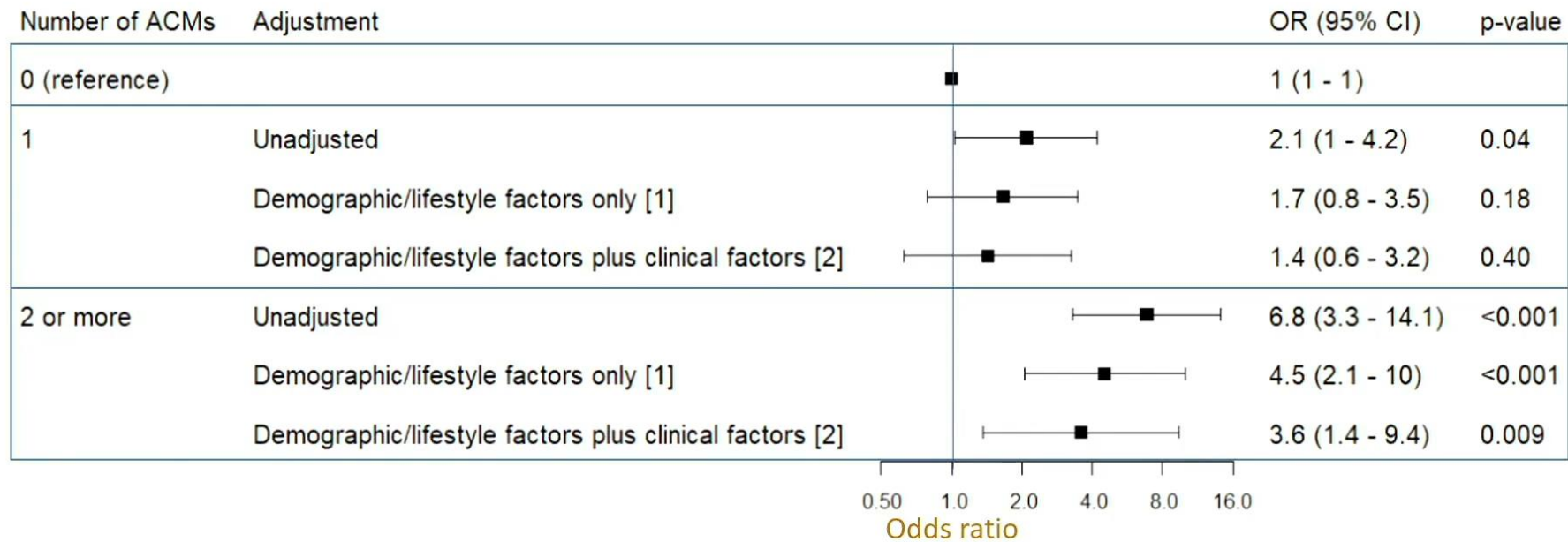
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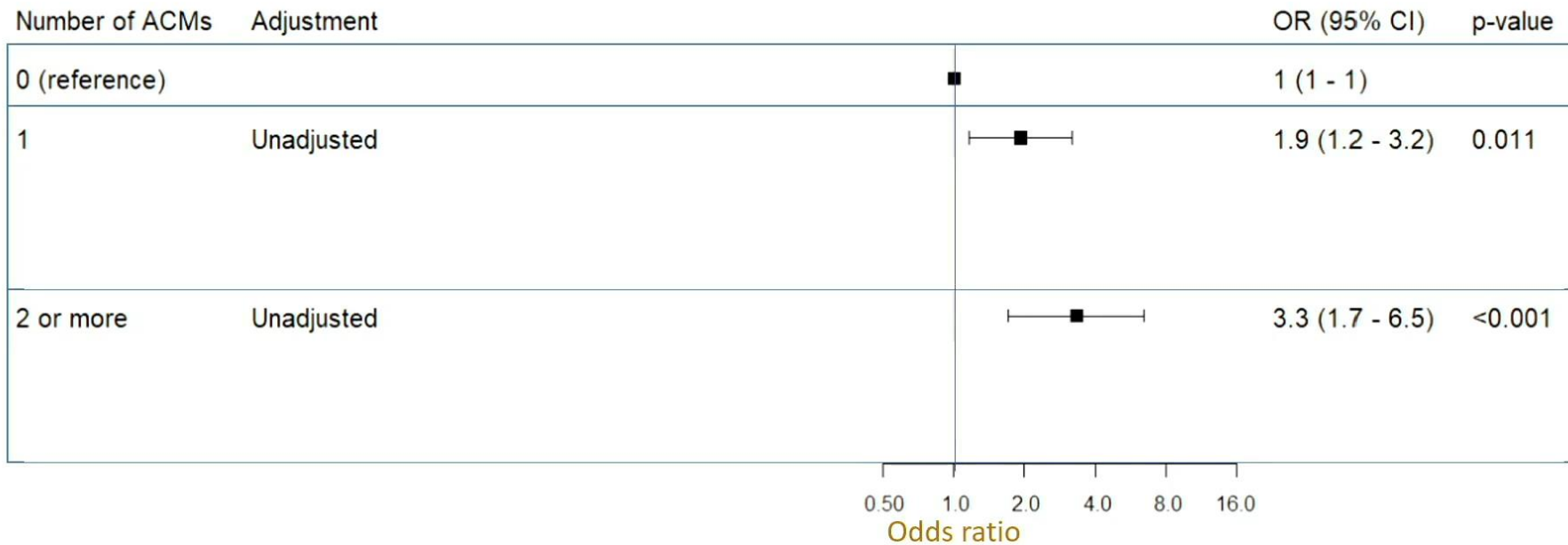
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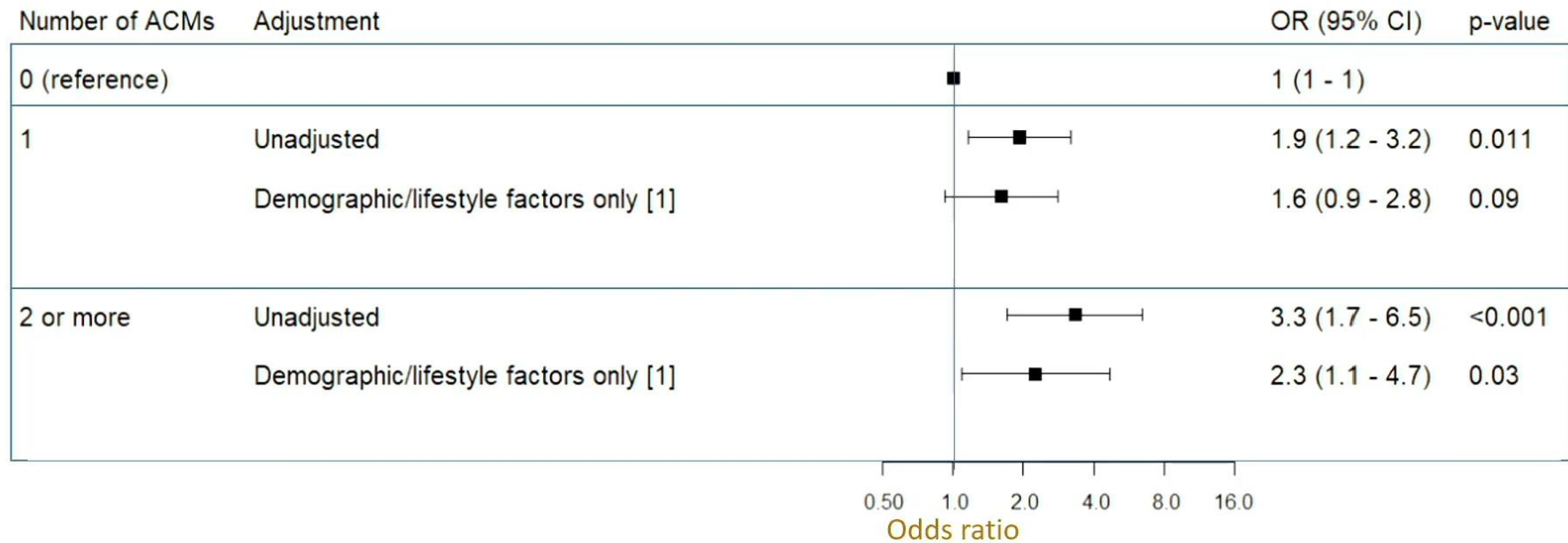
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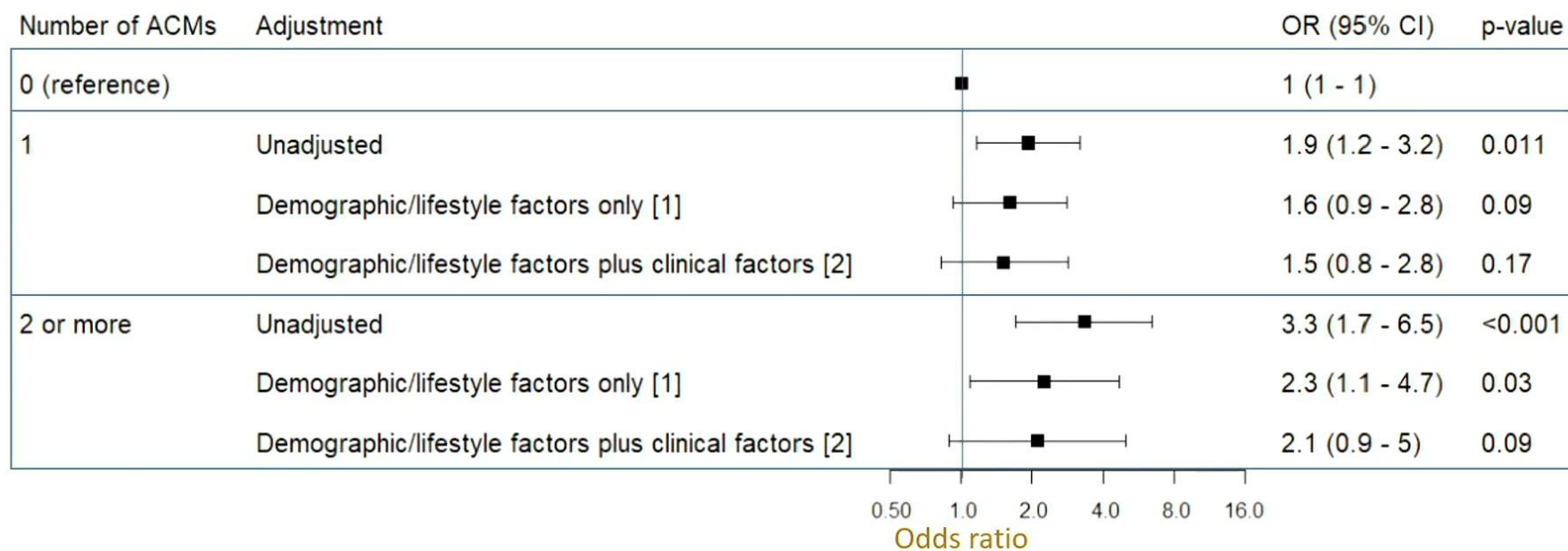
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Pharmacokinetic and clinical observations in people over 50

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# Summary



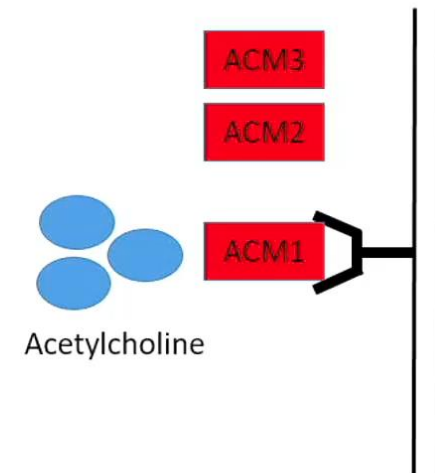
- ACMs are prescribed in a quarter of the population of PWH
- Evidence of an association with recurrent falls and, to a lesser extent, frailty
- Our findings support most worldwide data in the general geriatric population
- Clinicians to be aware of this association and reduce exposure to ACM where possible

- **Limitations**

- Cross-sectional analysis
- Unable to account for duration of use or dose of ACM
- Self-reported exposure and some outcome measures

- **Future Work**

- Investigation of temporal relationships
- Investigation of possible association between ACM and cognitive impairment



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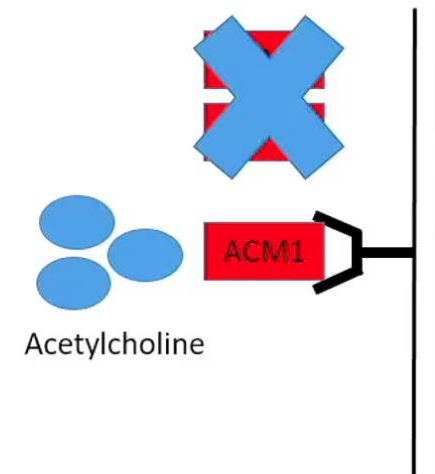
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# Acknowledgements



**POPPY Management Team:** Marta Boffito, Paddy Mallon, Frank Post, Caroline Sabin, Memory Sachikonye, Alan Winston

**POPPY Scientific Steering Committee:** Jane Anderson, David Asboe, Marta Boffito, Lucy Garvey, Paddy Mallon, Frank Post, Anton Pozniak, Caroline Sabin, Memory Sachikonye, Jaime Vera, Ian Williams, Alan Winston

**POPPY Sites and Trials Unit:**

- Elton John Centre, Brighton and Sussex University Hospital (Martin Fisher, Amanda Clarke, Jaime Vera, Andrew Bexley, Celia Richardson)
- St Stephen's Centre, Chelsea and Westminster Hospital (Marta Boffito, David Asboe, Anton Pozniak, Chris Higgs, Elisha Seah, Stephen Fletcher, Michelle Anthonipillai, Ashley Moyes, Katie Deats, Irtiza Syed, Clive Matthews, Peter Fernando)
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**POPPY methodology/statistics/analysis:** Caroline Sabin, Davide De Francesco, Emmanouil Bagkeris, Nicholas Bakewell

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