**Title:** Modeling State-Level Aging Patterns Among People with HIV in the United States

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**Text** (1655/3000 words)

**Introduction** (364/~500 words; RW: 369)

The United States (US) has made considerable progress in curtailing its HIV epidemic over the past several decades, with new infections seeing a 75% decrease from a peak of approximately 130,000 in 1984 to 31,800 in 20221,2. With the launch of the national *Ending the HIV Epidemic (EHE)* initiative in 2019, there has been a renewed focus on reducing infections among key risk groups, with new infections declining by 10% among men who have sex with men (MSM) and by 18% among Black or African Americans from 2018 to 20222,3.

While the EHE initiative focuses primarily on reducing new HIV infections, care must be paid to the estimated 1.2 million people already living with HIV in 20222. The widespread availability of effective antiretroviral therapy (ART) has increased the life expectancy of people with HIV (PWH) in the US. By the end of 2022, over half of individuals with diagnosed HIV in the US were aged 50 years or older4.

People aging with HIV are at increased risk for age-related conditions including cardiovascular diseases, chronic obstructive pulmonary disease, diabetes, chronic kidney disease, and certain non-AIDS-defining cancers5. They are also at greater risk of acquiring multiple comorbidities as they age6. A 2024 modeling analysis of comorbidity among PWH in the US who have initiated ART projected increases in depression, dyslipidemia, diabetes, chronic kidney disease, and myocardial infarction, with multimorbidity (two or more comorbidities other than HIV) projected to increase from 63% in 2020 to 70% in 20307. As the population living with HIV ages, local healthcare systems—as well as the national Medicare program—will need to prepare to manage the increasing burden of age-related comorbidities among this population.

Mathematical models of infectious disease can contribute to our understanding of the aging dynamics of local HIV epidemics. While there have been studies published to date exploring aging among PWH in the US, they have typically been conducted at the national level or focus only on certain risk groups such as MSM8-11. The objective of our study was to explore how aging dynamics of the population with HIV will differ at the state level in the US, using a dynamic, compartmental model of HIV transmission.

**Methods** (434/~700 words; RW: 1185)

*Model structure and calibration*

The Johns Hopkins Epidemiologic and Economic Model (JHEEM) is a dynamic, compartmental model of HIV transmission in the US, stratifying the adult population by age, race/ethnicity, sex, and HIV status. In order to capture the 48 counties highlighted in the EHE initiative, the JHEEM was originally developed to model epidemics at the level of metropolitan statistical area (MSA); the model has been adapted here to represent state-level epidemics. In this analysis, we model HIV epidemics in 11 states comprising 63% of diagnosed prevalence in the US: Alabama, California, Florida, Georgia, Illinois, Louisiana, Mississippi, Missouri, New York, Texas, and Wisconsin. These states were chosen to represent varied geographic regions and prioritization within EHE initiative.

The model calibration process at the state-level followed the same methodology as the previously-published MSA-level models, with analogous targets for population demographics, HIV dynamics (e.g., new diagnoses, diagnosed prevalence, and mortality), and the HIV care cascade (e.g., use of pre-exposure prophylaxis, awareness of HIV status, and viral suppression)—see Supplement.

*Modeled scenario and outcomes*

After calibration, we projected the models forward from 2025 to 2040 across the 24 states. Our projections followed a “status quo” scenario, assuming recent trends in HIV programming continue into the future, allowing for temporary disruptions due to the COVID pandemic.

Our primary outcome was the state-level proportion of people living with diagnosed HIV (PWDH) age 55+ (out of all adults age 13+ with diagnosed HIV in the state), in both 2025 and 2040. Secondary outcomes include the median age of PWDH over age 13, the absolute number of PWDH age 55+, and the proportion and absolute number of PWDH age 65+ (all reported in 2025 and 2040). For all outcomes, we report the mean across 1,000 simulations and the 95% credible interval (2.5th and 97.5th percentiles). We also present results by subgroup, specifically HIV acquisition risk (MSM vs non-MSM) and race (Black, Hispanic, and other).

We chose to include the secondary outcome focused on PWDH age 65+ due to the significance of Medicare eligibility beginning in this age group12. However, the oldest age group we explicitly model is age 55+; this was chosen to reflect the age stratifications available in the CDC surveillance data we use as calibration targets. Thus, in order to report estimates for age 65+, we used a smoothing….[GET DETAILS FROM NICK].

*Sensitivity analysis*

We conducted sensitivity analyses to identify the parameters that had the strongest influence on the proportion of PWDH age 55+. We calculated partial rank correlation coefficients (PRCC, a measure of the correlation between each parameter and the outcome) based on this outcome in one state. Furthermore, we inspected how the individual simulations with the highest and lowest values of those parameters compare based on our outcome of interest, the proportion of PWDH age 55+.

**Results** (838/~1000 words; RW: 864)

*Model calibration results and total diagnosed prevalence*

Our model estimates generally fit well to calibration targets. **Figure 1** depicts the calibration fit for Georgia, showing a comparison between model outputs and reported estimates for both diagnosed prevalence and reported diagnoses by age.

When aggregated across all 24 states, the model projected the total number of PWDH to rise from 917,000 (95% credible interval: 911,000 to 923,000) in 2025 to 1,002,000 (972,000 to 1,026,000) in 2040 (**Figure 2**, “Total”, and **Supplemental Figure X**, “Total”). Diagnosed prevalence was projected to increase in all states except for California, New York, and Illinois, Maryland, and Michigan, where we projected slight decreases in diagnosed prevalence during this period (**Figure 3**).

*Proportion and absolute number age 55+*

The proportion of PWDH age 55+ across all 24 states was projected to increase 10% (8 to 12%), from 45% (45 to 46%) in 2025 to 55% (53 to 58%) in 2040 (**Figure 2**). While New York had the greatest proportion age 55+ in 2025 at 56% (54 to 58%), the greatest increase in this proportion occurred in California with 17% change (11 to 24%). As a result, California had the highest projected proportion age 55+ by 2040 at 67% (59 to 75%). The state with the lowest proportion age 55+ in 2025 was Alabama at 34% (30 to 37%), which also had the lowest proportion age 55+ in 2040 at 33% (25 to 47%). It was among three states with a decrease in this proportion (AL: -1% [-6 to 10%]; WI: (-1% [-6 to 7%]); OK: -2% [-7 to 5%].

Across all states, the number of PWDH age 55+ increased from 417,000 (411,000 to 425,000) in 2025 to 553,000 (534,000 to 576,000) in 2040, representing a 33% increase in the total number of diagnosed individuals in this age group (**Supplemental Figure X**). Although California had the largest absolute number of PWDH age 55+ in 2025 at 70,000 (66,000 to 74,000), Florida had the largest absolute increase (27,000; [18,000 to 38,000], or a 41% increase) and the largest absolute number by 2040 (91,000; [81,000 to 106,000]). Oklahoma had the smallest absolute increase at 900 (400 to 1,500) and was the state with smallest projected number of PWDH age 55+ in 2040 at 3,500 (3,000 to 4,300).

Most states showed a persistently bimodal age distribution, with most prevalent cases existing in either the 55+ or 35-44 years age categories (**Figure 3**). Tennessee and Wisconsin were the only exceptions, with 25-34 years becoming the second-largest age category by 2040 with 30% and 32% of prevalent cases in each state respectively.

*Proportion and absolute number age 65+*

The proportion of PWDH age 65+ in the region was projected to increase 12% (11 to 14%), from 32% (32 to 33%) in 2025 to 45% (43 to 47%) (**Figure 2**). The total number of PWDH age 65+ rose from 298,000 (290,000 to 304,000) in 2025 to 448,000 (430,000 to 469,000), or a 51% increase in the total number in this age group (**Supplemental Figure X**). State-level patterns in proportion and number age 65+ resembled those of proportion and number age 55+, though the proportion age 65+ tended to rise by slightly more than the proportion age 55+ in each state.

*Median age*

From 2025 to 2040, the median age of adults over age 13 with diagnosed HIV was projected to shift 8 years older, from 51 years (50 to 51) to 59 years (57 to 61, **Figure 2**). California and Maryland had the greatest increases, with a 13-year increase in California (from 54 [52 to 56] in 2025 to 67 [63 to 70] in 2040) and a 12-year increase in Maryland (from 53 [51 to 56] in 2025 to 65 [57 to 70] in 2040). Seven states (Ohio, Tennessee, Colorado, Alabama, Oklahoma, Wisconsin, and Arkansas) had decreasing median ages over this period, with the largest decrease occurring in Wisconsin (a 7-year decrease, from 49 [48 to 51] in 2025 to 42 [38 to 60] in 2040).

*Results by subgroup*

The proportion age 55+ among MSM PWDH across the 24-state region was projected to increase from 42% (41 to 43%) in 2025 to 51% (49 to 55%) in 2040, while the same proportion for non-MSM individuals began and remained higher, rising from 52% (51 to 53%) in 2025 to 63% (60 to 67%) in 2040.

Among our three modeled racial categories, “Black” and “Hispanic” began younger than “Other”, but all three aged significantly. The proportion of Black PWDH who are age 55+ was projected to rise from 41% (40 to 42%) in 2025 to 51% (47 to 55%) in 2040, while the similar proportion for Hispanic individuals was projected to rise from 41% (38 to 43%) in 2025 to 56% (50 to 62%) in 2040, and for Other race individuals, from 56% (55 to 57%) in 2025 to 62% (58 to 65%) in 2040.

*Sensitivity analyses*

The parameters most strongly associated with the change in the proportion of adult PWDH age 55+ were aging rates (PRCCs: +0.519, age 35-44 MSM PWDH in 2020; -0.279, age 35-44 MSM PWDH in 2010; +0.22, age 35-44 heterosexual PWDH in 2020, **Figure 4**). In the 20% of simulations with the highest aging rate among age 35-44 MSM PWDH in 2020 in each state, the mean change in the proportion of adult PWDH age 55+ was 12.6%. Conversely, in the 20% of simulations with the lowest value of that parameter in each state, the mean change in the proportion age 55+ was only 7.4%.

**Discussion** (/ ~800 words; RW: 1077)

**[Fill in discussion]**

*Reprise of main results*

We used a calibrated model of HIV transmission to project the age distribution of people with diagnosed HIV in 24 US states. By 2040, over half of all PWDH in the region will be age 55+ and just under a half will be age 65+, but there will be significant differences between states. In California, 67% of adult PWDH will be age 55+ and 56% over age 65, while in Alabama, only 33% of adult PWDH will be age 55+ and 26% over 65. The median age of PWDH in the region will rise by roughly a decade between 2025 and 2040, although in some states like Wisconsin and Tennessee, the median age of PWDH will slightly decrease. In all states, the absolute number of PWDH age 55+ and 65+ will increase.

*Context*

As these proportions shift, HIV programming will have to consider realignment of priorities. In all modeled states, health systems will have to prepare for an increase in the absolute numbers of individuals accessing services for age-related comorbidities. This may include training for …, …, …. Among the total population eligible for Medicare (age 65+), the proportion with diagnosed HIV will rise from 55 per ten thousand in 2025 to 68 per ten thousand in 2040 *do as per ten thousand people*.

*Limitations*

* Did not directly model 65+ age group
* Assumptions about no major changes to services
* General limitations of the state model? Such as, HIV epidemics are better modeled at the MSA level in many cases?
  + Yes, you can say that we assumed homogenous mixing within state, whereas there are likely differences by urban/rural areas within states

There are several limitations to this study. Notably, we made assumptions that there would be no major changes to HIV care, prevention, and testing services during the model period. A study using the same model projected that interruptions to such services could lead to a large rise in new infections. Their most pessimistic scenario, modeling a permanent cessation of Ryan White services in July 2025, resulted in a projected 66% (18 to 114%) excess infections by 2030 versus a baseline scenario of continued services. The least disruptive scenario, modeling a temporary interruption in Ryan White services such that viral suppression begins to recover in 2027, still projected 25% (7 to 44%) excess infections by 2030 versus the baseline. Therefore, while the absolute number of PWDH age 55+ may still rise as projected here, the proportion of PWDH who are age 55+ is highly sensitive to a policy-related rise in infections.

*Strengths*

* Bayesian calibration approach allows us to represent uncertainty in our model parameters and capture a range of simulation results
* Modeling at the state level captures local dynamics

Our modeling approach has several advantages. Using a Bayesian calibration method allows us to incorporate uncertainty in our model parameters and in our calibration data. This uncertainty results in a range of simulations which provide a more nuanced understanding than could any single simulation. By modeling at the state, rather than national, level, we are able to capture the dynamics of local epidemics, with caveats as described above.

*Reprise of conclusion*

* Our findings suggest that the United States will face an aging HIV population over the next 15 years
* While policy initiatives such as the EHE plan have historically focused on reducing new HIV infections, we must continue to consider the needs of and provide comprehensive care for individuals living with HIV as they age.

**Figure 1: Model calibration and projected diagnosed prevalence (left panels) and new diagnoses (right panels) by age for Georgia, overlaid with calibration data.**

|  |  |  |
| --- | --- | --- |
|  | Diagnosed Prevalence | New Diagnoses |
| Total | A graph with dots and lines  Description automatically generated | A graph with lines and dots  Description automatically generated |
| 13-24 years | A graph with dots and lines  Description automatically generated | A graph with numbers and lines  Description automatically generated |
| 25-34 years | A graph with dots and lines  Description automatically generated | A graph with lines and dots  Description automatically generated |
| 35-44 years | A graph with numbers and dots  Description automatically generated | A graph with dots and lines  Description automatically generated |
| 45-54 years | A graph with lines and dots  Description automatically generated | A graph with numbers and lines  Description automatically generated |
| 55+ years | A graph with a line and dots  Description automatically generated | A graph with numbers and lines  Description automatically generated |

Sample projections by age for Georgia. The mean value across 1000 model simulations is shown as an orange line, with 95% credible intervals shown as a shaded ribbon. Green dots indicate calibration target data.

**Figure 2: State-Level Age Distribution Summary**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *State* | **Total Diagnosed Prevalence,**  **2025** | | **Proportion Age 55+** | | | **Proportion Age 65+** | | | **Median Age** | | | |
| *2025* | *2040* | Δ | *2025* | *2040* | Δ | *2025* | *2040* | Δ | |
| *CA* | 140,514 | | 50% | 67% | 17% | 36% | 56% | 20% | 54 | 67 | 13 | |
| [137,498 to 143,542] | | [47 to 53%] | [59 to 75%] | [11 to 24%] | [33 to 38%] | [49 to 63%] | [15 to 26%] | [52 to 56] | [63 to 70] | [11 to 16] | |
| *FL* | 126,261 | | 51% | 65% | 14% | 37% | 52% | 15% | 55 | 65 | 10 | |
| [123,429 to 128,818] | | [48 to 54%] | [56 to 75%] | [7 to 22%] | [34 to 40%] | [44 to 62%] | [8 to 23%] | [53 to 57] | [60 to 70] | [6 to 14] | |
| *NY* | 122,642 | | 56% | 65% | 9% | 42% | 55% | 13% | 58 | 67 | 9 | |
| [120,303 to 125,403] | | [54 to 58%] | [58 to 72%] | [3 to 16%] | [40 to 44%] | [49 to 61%] | [9 to 18%] | [57 to 60] | [64 to 70] | [6 to 11] | |
| *TX* | 107,200 | | 36% | 47% | 11% | 24% | 37% | 13% | 46 | 49 | 3 | |
| [104,995 to 109,781] | | [34 to 38%] | [39 to 58%] | [4 to 20%] | [22 to 26%] | [29 to 46%] | [6 to 20%] | [45 to 47] | [42 to 61] | [-3 to 14] | |
| *GA* | 63,841 | | 37% | 45% | 8% | 26% | 37% | 11% | 45 | 47 | 2 | |
| [62,494 to 65,290] | | [34 to 41%] | [35 to 58%] | [-1 to 17%] | [23 to 30%] | [27 to 49%] | [3 to 21%] | [44 to 47] | [41 to 64] | [-4 to 17] | |
| *NC* | 37,389 | | 44% | 53% | 8% | 31% | 43% | 11% | 50 | 56 | 6 | |
| [36,479 to 38,220] | | [41 to 47%] | [45 to 62%] | [3 to 15%] | [29 to 34%] | [35 to 50%] | [6 to 17%] | [48 to 52] | [43 to 64] | [-6 to 13] | |
| *IL* | 35,682 | | 43% | 56% | 14% | 31% | 45% | 14% | 48 | 59 | 11 | |
| [35,063 to 36,313] | | [40 to 46%] | [47 to 70%] | [6 to 24%] | [28 to 33%] | [37 to 57%] | [7 to 24%] | [47 to 50] | [46 to 68] | [-2 to 18] | |
| *MD* | 33,174 | | 49% | 64% | 16% | 35% | 53% | 17% | 53 | 65 | 12 | |
| [31,725 to 35,153] | | [46 to 53%] | [53 to 77%] | [6 to 25%] | [33 to 39%] | [42 to 62%] | [8 to 24%] | [51 to 56] | [57 to 70] | [6 to 16] | |
| *OH* | 25,893 | | 41% | 46% | 5% | 29% | 36% | 8% | 48 | 47 | -1 | |
| [25,369 to 26,454] | | [38 to 44%] | [38 to 55%] | [-1 to 13%] | [26 to 32%] | [29 to 45%] | [2 to 14%] | [46 to 49] | [41 to 60] | [-5 to 11] | |
| *VA* | 25,510 | | 48% | 62% | 14% | 35% | 51% | 16% | 52 | 64 | 12 | |
| [24,939 to 26,089] | | [45 to 51%] | [52 to 72%] | [6 to 22%] | [33 to 38%] | [42 to 61%] | [8 to 23%] | [50 to 54] | [57 to 70] | [6 to 17] | |
| *LA* | 22,298 | | 39% | 52% | 13% | 27% | 41% | 14% | 47 | 54 | 7 | |
| [21,657 to 22,797] | | [36 to 42%] | [40 to 65%] | [4 to 24%] | [24 to 30%] | [31 to 52%] | [7 to 23%] | [45 to 48] | [43 to 65] | [-3 to 17] | |
| *AZ* | 20,063 | | 44% | 54% | 10% | 31% | 44% | 13% | 50 | 57 | 7 | |
| [19,616 to 20,452] | | [40 to 48%] | [43 to 66%] | [1 to 20%] | [28 to 34%] | [34 to 56%] | [5 to 22%] | [48 to 52] | [42 to 67] | [-6 to 16] | |
| *TN* | 19,782 | | 35% | 34% | 0% | 23% | 26% | 3% | 46 | 40 | -6 | |
| [19,392 to 20,209] | | [31 to 39%] | [28 to 41%] | [-4 to 3%] | [19 to 26%] | [20 to 32%] | [0 to 7%] | [44 to 47] | [38 to 43] | [-7 to -4] | |
| *SC* | 18,553 | | 44% | 55% | 11% | 31% | 43% | 12% | 50 | 57 | 7 | |
| [18,158 to 18,931] | | [41 to 47%] | [46 to 66%] | [5 to 20%] | [28 to 34%] | [36 to 52%] | [7 to 19%] | [48 to 52] | [47 to 65] | [-1 to 14] | |
| *MI* | 17,608 | | 39% | 51% | 12% | 27% | 42% | 15% | 47 | 53 | 6 | |
| [17,178 to 18,006] | | [36 to 42%] | [41 to 64%] | [5 to 23%] | [24 to 30%] | [33 to 53%] | [8 to 23%] | [45 to 48] | [42 to 66] | [-4 to 18] | |
| *WA* | 16,078 | | 46% | 52% | 5% | 32% | 40% | 7% | 52 | 54 | 2 | |
| [15,722 to 16,445] | | [42 to 50%] | [41 to 64%] | [-2 to 16%] | [29 to 36%] | [30 to 50%] | [1 to 16%] | [50 to 54] | [44 to 64] | [-7 to 11] | |
| *CO* | 15,192 | | 46% | 46% | 0% | 34% | 40% | 5% | 51 | 45 | -6 | |
| [14,845 to 15,675] | | [43 to 50%] | [39 to 54%] | [-5 to 5%] | [32 to 38%] | [33 to 47%] | [0 to 10%] | [49 to 53] | [41 to 61] | [-10 to 8] | |
| *AL* | 15,021 | | 34% | 33% | -1% | 22% | 26% | 4% | 44 | 41 | -3 | |
| [14,575 to 15,363] | | [30 to 37%] | [25 to 47%] | [-6 to 10%] | [19 to 25%] | [19 to 37%] | [-1 to 12%] | [43 to 46] | [38 to 46] | [-5 to 1] | |
| *MO* | 13,812 | | 43% | 47% | 3% | 31% | 39% | 8% | 48 | 48 | 0 | |
| [13,462 to 14,158] | | [40 to 47%] | [35 to 59%] | [-5 to 14%] | [28 to 35%] | [29 to 50%] | [0 to 17%] | [46 to 51] | [39 to 64] | [-8 to 14] | |
| *MS* | 10,154 | | 38% | 44% | 6% | 26% | 33% | 8% | 47 | 47 | 0 | |
| [9,897 to 10,380] | | [35 to 41%] | [38 to 53%] | [2 to 13%] | [23 to 28%] | [27 to 43%] | [3 to 15%] | [46 to 48] | [43 to 57] | [-3 to 10] | |
| *KY* | 8,830 | | 37% | 48% | 10% | 26% | 37% | 11% | 46 | 49 | 3 | |
| [8,620 to 9,050] | | [35 to 40%] | [41 to 56%] | [5 to 17%] | [23 to 28%] | [31 to 44%] | [7 to 17%] | [45 to 48] | [42 to 59] | [-3 to 12] | |
| *OK* | 7,307 | | 37% | 34% | -2% | 25% | 27% | 2% | 46 | 41 | -5 | |
| [7,152 to 7,466] | | [33 to 40%] | [28 to 43%] | [-7 to 5%] | [22 to 29%] | [21 to 35%] | [-3 to 8%] | [44 to 47] | [39 to 43] | [-7 to -3] | |
| *WI* | 7,259 | | 44% | 43% | -1% | 32% | 37% | 5% | 49 | 42 | -7 | |
| [7,095 to 7,447] | | [41 to 47%] | [37 to 53%] | [-6 to 7%] | [29 to 35%] | [31 to 46%] | [0 to 13%] | [48 to 51] | [38 to 60] | [-11 to 9] | |
| *AR* | 7,052 | | 35% | 36% | 1% | 24% | 28% | 4% | 45 | 41 | -4 | |
| [6,845 to 7,250] | | [31 to 39%] | [29 to 46%] | [-4 to 8%] | [20 to 27%] | [21 to 36%] | [0 to 10%] | [43 to 47] | [38 to 45] | [-6 to -1] | |
| *Total* | 917,115 | | 45% | 55% | 10% | 32% | 45% | 12% | 51 | 59 | 8 | |
| [911,107 to 922,885] | | [45 to 46%] | [53 to 58%] | [8 to 12%] | [32 to 33%] | [43 to 47%] | [11 to 14%] | [50 to 51] | [57 to 61] | [7 to 10] | |
|  | | |  |  |  | | --- | --- | --- | | Decrease |  | Increase | | | | | | | | | | |

Values given are the mean model projections and 95% credible intervals across 1,000 simulations. States are ordered by the 2025 diagnosed prevalence among all adults over age 13. Proportions age 55+ and 65+ indicate the proportion of all diagnosed adults living with HIV who fall into these age categories, with values for 2025, 2040, and the change between these two years. The median age is for all adults with diagnosed HIV, with values for 2025, 2040 and the change between these two years. Cells are shaded according to the change between years within each measure, with darker orange values indicating states with greater aging and darker blue values indicating states with increasingly younger populations.

**Figure 3: Diagnosed prevalence projections stratified by age group.**

A chart of different colored lines

Description automatically generated with medium confidence

Plots show model projections of the number of diagnosed cases among adults between 2025 and 2040 by state and for the total among the modeled states. Each plot is stratified by age group, with age 55+ years at the top of the stack. States are arranged in decreasing order by total adult diagnosed prevalence in 2025.

**Figure 4: Sensitivity analysis for parameters most strongly associated with change in proportion of PWDH age 55+ in 2040 versus 2025.**

A diagram of a graph

Description automatically generated

The red (lower) bars represent the estimate of the change in this percentage for the 20% of simulations with the lowest values of each parameter in 2040; the blue (upper) bars represent the estimate for the 20% of simulations with the highest values. Parameters are ordered by the difference in median estimates between the two subsets. They are labeled with their partial rank correlation coefficient in parentheses, a multivariate estimate of the correlation between each parameter and the outcome. Values closer to 1 or -1 indicate stronger correlation. The dotted line shows the mean change in proportion of adult PWDH age 55+ across the 24-state region, approximately 9.76.

**Supplemental Figure X: Diagnosed prevalence projections with estimated populations of PWDH age 65+.**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *State* | Total Diagnosed Prevalence,  2025 | Number Age 55+ | | | Number Age 65+ | | |
| *2025* | *2040* | Δ | *2025* | *2040* | Δ |
| *CA* | 140,514 | 70,024 | 89,408 | 19,384 | 50,007 | 74,214 | 24,207 |
| [137,498 to 143,542] | [65,956 to 74,277] | [78,383 to 100,109] | [11,274 to 27,031] | [46,011 to 54,029] | [63,923 to 84,013] | [17,127 to 30,775] |
| *FL* | 126,261 | 64,700 | 91,496 | 26,796 | 46,707 | 73,697 | 26,990 |
| [123,429 to 128,818] | [61,181 to 68,566] | [80,767 to 106,063] | [18,299 to 37,780] | [43,307 to 50,227] | [63,673 to 87,438] | [18,922 to 37,640] |
| *NY* | 122,642 | 68,852 | 74,912 | 6,060 | 50,933 | 63,388 | 12,455 |
| [120,303 to 125,403] | [65,678 to 71,994] | [66,824 to 84,789] | [-676 to 14,310] | [48,130 to 53,872] | [56,464 to 71,280] | [6,950 to 19,212] |
| *TX* | 107,200 | 38,685 | 59,400 | 20,715 | 25,663 | 45,973 | 20,310 |
| [104,995 to 109,781] | [35,915 to 41,236] | [50,022 to 71,931] | [13,258 to 31,171] | [23,034 to 27,933] | [37,684 to 56,319] | [13,490 to 29,170] |
| *GA* | 63,841 | 23,875 | 32,831 | 8,957 | 16,682 | 27,169 | 10,488 |
| [62,494 to 65,290] | [21,933 to 26,114] | [25,816 to 39,222] | [3,603 to 14,183] | [14,880 to 18,898] | [20,075 to 33,550] | [4,976 to 15,575] |
| *NC* | 37,389 | 16,568 | 25,162 | 8,595 | 11,679 | 20,301 | 8,621 |
| [36,479 to 38,220] | [15,443 to 17,557] | [21,030 to 29,270] | [5,249 to 12,083] | [10,666 to 12,573] | [16,822 to 23,749] | [6,047 to 11,517] |
| *IL* | 35,682 | 15,209 | 17,807 | 2,598 | 10,850 | 14,162 | 3,312 |
| [35,063 to 36,313] | [14,206 to 16,345] | [15,471 to 20,933] | [516 to 4,859] | [9,998 to 11,837] | [12,106 to 17,133] | [1,414 to 5,572] |
| *MD* | 33,174 | 16,098 | 18,292 | 2,195 | 11,659 | 14,956 | 3,297 |
| [31,725 to 35,153] | [15,121 to 17,547] | [15,043 to 20,320] | [-151 to 3,524] | [10,911 to 12,844] | [12,803 to 16,299] | [1,754 to 4,385] |
| *OH* | 25,893 | 10,553 | 13,498 | 2,945 | 7,410 | 10,719 | 3,309 |
| [25,369 to 26,454] | [9,802 to 11,373] | [11,414 to 16,201] | [1,335 to 5,138] | [6,719 to 8,161] | [8,764 to 13,134] | [1,768 to 5,212] |
| *VA* | 25,510 | 12,253 | 17,675 | 5,423 | 8,962 | 14,450 | 5,488 |
| [24,939 to 26,089] | [11,533 to 13,001] | [15,174 to 20,266] | [3,209 to 7,579] | [8,263 to 9,660] | [12,058 to 16,938] | [3,282 to 7,435] |
| *LA* | 22,298 | 8,637 | 12,937 | 4,299 | 5,907 | 10,200 | 4,293 |
| [21,657 to 22,797] | [7,909 to 9,406] | [10,189 to 16,089] | [2,252 to 6,750] | [5,281 to 6,589] | [7,858 to 12,930] | [2,479 to 6,496] |
| *AZ* | 20,063 | 8,833 | 13,118 | 4,286 | 6,223 | 10,628 | 4,404 |
| [19,616 to 20,452] | [8,098 to 9,544] | [10,796 to 16,381] | [2,419 to 7,033] | [5,507 to 6,859] | [8,455 to 13,757] | [2,739 to 6,867] |
| *TN* | 19,782 | 6,848 | 8,759 | 1,910 | 4,455 | 6,579 | 2,123 |
| [19,392 to 20,209] | [6,143 to 7,593] | [7,219 to 10,833] | [1,037 to 3,472] | [3,807 to 5,177] | [5,253 to 8,232] | [1,377 to 3,416] |
| *SC* | 18,553 | 8,115 | 11,720 | 3,605 | 5,695 | 9,107 | 3,413 |
| [18,158 to 18,931] | [7,503 to 8,763] | [9,802 to 15,446] | [2,181 to 6,725] | [5,144 to 6,278] | [7,520 to 12,102] | [2,238 to 5,917] |
| *MI* | 17,608 | 6,870 | 8,692 | 1,822 | 4,763 | 7,106 | 2,343 |
| [17,178 to 18,006] | [6,239 to 7,485] | [6,845 to 10,895] | [553 to 3,484] | [4,182 to 5,328] | [5,451 to 9,076] | [1,197 to 3,836] |
| *WA* | 16,078 | 7,433 | 11,793 | 4,360 | 5,175 | 9,091 | 3,916 |
| [15,722 to 16,445] | [6,792 to 8,037] | [9,854 to 13,842] | [2,876 to 5,989] | [4,563 to 5,766] | [7,390 to 10,845] | [2,620 to 5,318] |
| *CO* | 15,192 | 7,049 | 10,247 | 3,198 | 5,176 | 8,783 | 3,606 |
| [14,845 to 15,675] | [6,548 to 7,647] | [8,767 to 12,178] | [2,044 to 4,685] | [4,709 to 5,760] | [7,565 to 10,440] | [2,575 to 4,944] |
| *AL* | 15,021 | 5,045 | 6,150 | 1,105 | 3,312 | 4,829 | 1,517 |
| [14,575 to 15,363] | [4,570 to 5,474] | [4,767 to 8,168] | [47 to 2,886] | [2,892 to 3,716] | [3,619 to 6,377] | [577 to 2,796] |
| *MO* | 13,812 | 5,964 | 7,366 | 1,402 | 4,305 | 6,190 | 1,885 |
| [13,462 to 14,158] | [5,473 to 6,456] | [6,015 to 8,672] | [429 to 2,381] | [3,842 to 4,754] | [4,872 to 7,377] | [927 to 2,780] |
| *MS* | 10,154  [9,897 to 10,380] | 3,853 | 5,292 | 1,439 | 2,586 | 3,966 | 1,381 |
| [3,532 to 4,172] | [4,325 to 6,461] | [744 to 2,342] | [2,281 to 2,885] | [3,110 to 5,064] | [712 to 2,283] |
| *KY* | 8,830 | 3,300 | 4,620 | 1,320 | 2,249 | 3,592 | 1,343 |
| [8,620 to 9,050] | [3,057 to 3,532] | [3,994 to 5,407] | [839 to 1,943] | [2,001 to 2,467] | [3,014 to 4,255] | [892 to 1,869] |
| *OK* | 7,307 | 2,669 | 3,538 | 869 | 1,819 | 2,787 | 968 |
| [7,152 to 7,466] | [2,413 to 2,956] | [2,956 to 4,338] | [368 to 1,496] | [1,556 to 2,097] | [2,191 to 3,603] | [450 to 1,586] |
| *WI* | 7,259 | 3,185 | 4,221 | 1,036 | 2,294 | 3,556 | 1,262 |
| [7,095 to 7,447] | [2,976 to 3,409] | [3,700 to 4,774] | [664 to 1,461] | [2,087 to 2,509] | [3,001 to 4,107] | [804 to 1,671] |
| *AR* | 7,052 | 2,474 | 3,876 | 1,402 | 1,667 | 2,994 | 1,327 |
| [6,845 to 7,250] | [2,219 to 2,733] | [3,080 to 4,853] | [805 to 2,213] | [1,418 to 1,916] | [2,286 to 3,890] | [809 to 2,030] |
| *Total* | 917,115  [911,107 to 922,885] | 417,091  [410,673 to 424,924] | 552,810  [533,818 to 575,511] | 135,720 | 296,179 | 448,437 | 152,258 |
| [120,067 to 153,442] | [290,299 to 303,727] | [429,756 to 469,469] | [136,481 to 168,133] |

Values given are the mean and 95% credible intervals across 1,000 simulations. The total diagnosed adult prevalence and number of diagnosed adults age 55+ are projected directly by the model, whereas the values for adults age 65+ are estimated using a spline function as described in the methods. States are ordered by the 2025 diagnosed prevalence among all adults over age 13. Numbers age 55+ and 65+ indicate the estimated number of diagnosed adults living with HIV who fall into these age categories, with values for 2025, 2040, and the change between these two years.

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