

Estimating the State-Specific Impact of the HRSA Ryan White HIV/AIDS Program December 13, 2018

Pamela Klein, MSPH, PhD
Health Scientist, Division of Policy and Data (DPD)
HIV/AIDS Bureau (HAB)
Health Resources and Services Administration (HRSA)



Health Resources and Services Administration (HRSA) Overview

- Supports more than 90 programs that provide health care to people who are geographically isolated, economically or medically vulnerable through grants and cooperative agreements to more than 3,000 awardees, including community and faith-based organizations, colleges and universities, hospitals, state, local, and tribal governments, and private entities
- Every year, HRSA programs serve tens of millions of people, including people living with HIV/AIDS, pregnant women, mothers and their families, and those otherwise unable to access quality health care



HIV/AIDS Bureau Vision and Mission

Vision

Optimal HIV/AIDS care and treatment for all.

Mission

Provide leadership and resources to assure access to and retention in high quality, integrated care, and treatment services for vulnerable people living with HIV/AIDS and their families.



Ryan White HIV/AIDS Program

- Provides comprehensive system of HIV primary medical care, medications, and essential support services for low-income people living with HIV
 - More than half of people living with diagnosed HIV in the United States – more than 550,000 people – receive care through the Ryan White HIV/AIDS Program
- Funds grants to states, cities/counties, and local community based organizations
 - Recipients determine service delivery and funding priorities based on local needs and planning process
- Payor of last resort statutory provision: RWHAP funds may not be used for services if another state or federal payer is available
- 84.9% of Ryan White HIV/AIDS Program clients were virally suppressed in 2016, exceeding national average of nearly 60% among people diagnosed with HIV



Source: HRSA. Ryan White HIV/AIDS Program Annual Client-Level Data Report 2016; CDC. HIV Surveillance Supplemental Report 2016;21(No. 4)



Origin of State-Specific RWHAP Impact Model

- In 2017, HAB was approached by a state public health department to estimate the impact of the RWHAP in their jurisdiction
- Working with the Centers for Disease Control (CDC), HAB developed resources to address the state's request that would be applicable to all state jurisdictions
- Products:
 - A mathematical model to estimate the state-specific impact of the RWHAP on clients, providers, mortality, transmissions, and costs
 - Template language to communicate the results of the state-specific impact model to state-level decision makers
 - Technical notes on the model parameters and calculations



Components of the State-Specific Impact Model and Statement

1. Current reach of the RWHAP
2. Estimated number of clients and providers impacted by a removal of support for the RWHAP
3. Projected number of additional deaths attributable to a removal of support for the RWHAP
4. Projected number of additional cases and associated HIV care and treatment costs attributable to a removal of support for the RWHAP



1. Current Reach of the RWHAP

In 2016, the Health Resources and Services Administration's Ryan White HIV/AIDS Program (RWHAP), including the AIDS Drug Assistance Program, supported direct health care, support services, and medication access for ___ (#) people living with diagnosed HIV (PLWH) in [STATE], representing ___% of PLWH in [STATE].

- Number of clients in the RSR (RWHAP Parts A-D) and the ADR (ADAP) datasets
- Estimated overlap between the RSR and ADR
- Number of adults and adolescents living with diagnosed HIV infection in the state by year-end 2015 (HIV Surveillance Report)



2. Estimated number of clients and providers impacted by a removal of support for the RWHAP

If support for the RWHAP for [STATE] was removed, at least __ (#) RWHAP clients (__% of RWHAP clients) and all __ (#) HIV providers supported by the RWHAP would be negatively impacted. This removal of support would greatly reduce the number of PLWH who are receiving HIV medical services and treatment in [STATE].

- Assumptions:
 - Uninsured RWHAP Part A-D clients and ADAP clients receiving insurance premium assistance would lose access to HIV-related medical care (conservative estimate)
 - All providers supported by the RWHAP would be impacted
- With consultation with the state and the state's Project Officer, the number of HIV providers in the state supported by the RWHAP will either come from the RSR/CLC or based on information provided by the state.



3. Projected number of additional deaths attributable to a removal of support for the RWHAP

For PLWH, receipt of HIV treatment improves quality of life, increases life expectancy, and reduces morbidity and mortality. The reduction in PLWH receiving HIV medical services and treatment could result in ___ (#) additional deaths among PLWH in [STATE] over ___ (#) years, above and beyond the average number of deaths that typically occur in a ___ (#)-year period (approximately ___ [#]).

- Underlying model examines the distribution of RWHAP clients along the HIV care continuum in current state (full support) compared with the estimated reduction in care (hypothetical removal of support for the RWHAP)
- Mortality rates at care continuum stages from published literature, validated with CDC mortality data
- Typical number of deaths from CDC Surveillance Supplemental Report
- HAB will provide mortality estimates for both 1- and 5-year time frames



4. Projected additional cases and HIV care and treatment costs attributable to a removal of support for the RWHAP

Receipt of HIV treatment also prevents HIV transmission. The reduction in PLWH receiving HIV medical services and treatment could result in ___ (#) additional HIV cases in [STATE] over ___ (#) years, above and beyond the average number of new HIV cases that typically occur in a ___ (#)-year period (approximately ___ [#]). These ___ (#) additional HIV cases could result in approximately \$___ additional lifetime HIV care and treatment costs.”

- Underlying model examines the distribution of RWHAP clients along the HIV care continuum in current state (full support) compared with the estimated reduction in care (hypothetical removal of support for the RWHAP)
- Transmission rates at care continuum stages from CDC PATH 2.0 model
- Typical number of cases from CDC Surveillance Report
- HIV care and treatment costs from Farnham, et al. (based on CDC data)
- HAB will provide transmission and cost estimates for both 1- and 5-year time frames



Examples in Low (A) and High (B) Prevalence Jurisdictions

1. Current Reach of the RWHAP

Low Prevalence - State A

In 2016, the Health Resources and Services Administration's Ryan White HIV/AIDS Program (RWHAP), including the AIDS Drug Assistance Program, supported direct health care, support services, and medication access for **224 people living with diagnosed HIV (PLWH) in State A, representing 78% of PLWH in State A.**

High Prevalence - State B

In 2016, the Health Resources and Services Administration's Ryan White HIV/AIDS Program (RWHAP), including the AIDS Drug Assistance Program, supported direct health care, support services, and medication access for **24,271 people living with diagnosed HIV (PLWH) in State B, representing 49% of PLWH in State B.**



Examples in Low (A) and High (B) Prevalence Jurisdictions

2. Estimated number of clients and providers impacted by a removal of support for the RWHAP

Low Prevalence - State A

If support for the RWHAP for State A was removed, at least 50 RWHAP clients (22% of RWHAP clients in State A), and all 3 HIV providers supported by the RWHAP would be negatively impacted. This removal of support would greatly reduce the number of PLWH who are receiving HIV medical services and treatment in State A.

High Prevalence - State B

If support for the RWHAP for State B was removed, at least 10,194 RWHAP clients (42% of RWHAP clients in State B), and all 33 HIV providers supported by the RWHAP would be negatively impacted. This removal of support would greatly reduce the number of PLWH who are receiving HIV medical services and treatment in State B.



Examples in Low (A) and High (B) Prevalence Jurisdictions

3. Projected number of additional deaths attributable to a removal of support for the RWHAP

Low Prevalence - State A

For PLWH, receipt of HIV treatment improves quality of life, increases life expectancy, and reduces morbidity and mortality. The reduction in PLWH receiving HIV medical services and treatment could result in **11 additional deaths among PLWH in State A over 5 years**, above and beyond the average number of deaths that typically occur in a **5-year period** (approximately 24 deaths).

High Prevalence - State B

For PLWH, receipt of HIV treatment improves quality of life, increases life expectancy, and reduces morbidity and mortality. The reduction in PLWH receiving HIV medical services and treatment could result in **545 additional deaths among PLWH in State B in 1 year**, above and beyond the average number of deaths that typically occur in **1 year** (approximately 870 deaths).



Example Calculation: 25% Reduction in Support

Step 1 - Calculate “Current Scenario” care continuum

Step 2 – Calculate “Hypothetical Scenario” care continuum

Step 3 – Apply care continuum-stage specific mortality rates

Step 4 – Estimate additional deaths



Example Calculation: 25% Reduction in Support

Step 1 - Calculate Current Scenario care continuum

- Based on RWHAP data

	Current Scenario		
Not in care	0		
In care, but not virally suppressed	1,000		
Virally suppressed	2,000		
Total	3,000		



Example Calculation: 25% Reduction in Support

Step 2 – Calculate Hypothetical Scenario care continuum

- Shift 25% of clients “in care” (regardless of viral suppression) to “not in care”
- 75% of “in care” clients remain in their original state

	Current Scenario		Hypothetical Scenario
Not in care	0		(25% not VS) + (25% VS) = 750
In care, but not virally suppressed	1,000	-25%	(1,000 not VS) x (75%) = 750
Virally suppressed	2,000		(2,000 VS) x (75%) = 1,500
Total	3,000		3,000

Example Calculation: 25% Reduction in Support

Step 3 – Apply care continuum stage-specific mortality rates

- Multiply the number of clients in each stage by the stage-specific mortality rate
- Compute for Current and Hypothetical Scenarios to obtain Scenario-specific 1-year estimated mortality

	Current Scenario		Hypothetical Scenario		Mortality Rate (per 100 person-years) <i>[Krentz, 2014]</i>
Not in care	0		750		6.9
In care, but not virally suppressed	1,000		750		2.5
Virally suppressed	2,000		1,500		0.3
Total	3,000		3,000		

Example Calculation: 25% Reduction in Support

Step 3 – Apply care continuum stage-specific mortality rates

- Multiply the number of clients in each stage by the stage-specific mortality rate
- Compute for Current and Hypothetical Scenarios to obtain Scenario-specific 1-year estimated mortality

	Current Scenario	Current Scenario: Mortality <i>(Current Scenario) x (Mortality Rate)</i>	Hypothetical Scenario	Hypothetical Scenario: Mortality <i>(Current Scenario) x (Mortality Rate)</i>	Mortality Rate (per 100 person-years)
Not in care	0	$(0) \times (6.9/100 \text{ mortality rate}) = 0$	750	$(750) \times (6.9/100 \text{ mortality rate}) = 52$	6.9
In care, but not virally suppressed	1,000	$(1,000) \times (2.5/100 \text{ mortality rate}) = 25$	750	$(750) \times (2.5/100 \text{ mortality rate}) = 19$	2.5
Virally suppressed	2,000	$(2,000) \times (0.3/100 \text{ mortality rate}) = 6$	1,500	$(1,500) \times (0.3/100 \text{ mortality rate}) = 4$	0.3
Total	3,000	31	3,000	75	

Example Calculation: 25% Reduction in Support

Step 4 – Estimate Additional Deaths

- Subtract the number of estimated deaths in the Current Scenario from the Hypothetical Scenario

	Current Scenario	Current Scenario: Mortality	Hypothetical Scenario	Hypothetical Scenario: Mortality	Mortality Rate (per 100 person-years)	Additional Deaths <i>(Hypothetical Mortality) – (Current Mortality)</i>
Not in care	0	0	750	52	6.9	$(52) - (0) = 52$
In care, but not virally suppressed	1,000	25	750	19	2.5	$(19) - (25) = -6$
Virally suppressed	2,000	6	1,500	4	0.3	$(4) - (6) = -2$
Total	3,000	31	3,000	75		44

The reduction in PLWH receiving HIV medical services and treatment could result in **44 additional deaths** among PLWH in State Z in 1 year.



Examples in Low (A) and High (B) Prevalence Jurisdictions

4. Projected number of additional cases and associated HIV care and treatment costs attributable to a removal of support for the RWHAP

Low Prevalence - State A

Receipt of HIV treatment also prevents HIV transmission. The reduction in PLWH receiving HIV medical services and treatment could result in **7 additional HIV cases** in **State A over 5 years**, above and beyond the average number of new HIV cases that typically occur in a **5-year period** (approximately **70 new cases**). These 7 additional HIV cases could result in approximately **\$3,262,000 additional lifetime HIV care and treatment costs**.

High Prevalence - State B

Receipt of HIV treatment also prevents HIV transmission. The reduction in PLWH receiving HIV medical services and treatment could result in **313 additional HIV cases** in **State B in 1 year**, above and beyond the average number of new HIV cases that typically occur in **1 year** (approximately **2,928 new cases**). These 313 additional HIV cases could result in approximately **\$145,858,000 additional lifetime HIV care and treatment costs**.



Examples in Low (A) and High (B) Prevalence Jurisdictions

Projected Outcomes Tables to Accompany Template Language

Low Prevalence - State A	1 Year	5 Years
Mortality		
Average number of deaths among PLWH	5	24
Additional deaths among PLWH projected with reduction in support	2	11
New Cases		
Average number of new HIV cases	14	70
Additional HIV cases projected with reduction in support	2	7
Additional lifetime HIV care and treatment costs projected with reduction in support	\$932,000	\$3,262,000

High Prevalence - State B	1 Year	5 Years
Mortality		
Average number of deaths among PLWH	870	4,352
Additional deaths among PLWH projected with reduction in support	545	2,728
New Cases		
Average number of new HIV cases	2,928	14,640
Additional HIV cases projected with reduction in support	313	1,567
Additional lifetime HIV care and treatment costs projected with reduction in support	\$145,858,000	\$730,222,000



Extension of Impact Statement to National Data

*In 2016, the Health Resources and Services Administration's Ryan White HIV/AIDS Program (RWHAP), including the AIDS Drug Assistance Program, supported direct health care, support services, and medication access for **599,098 people living with diagnosed HIV (PLWH)** in the **United States**, representing **61% of PLWH** in the **United States**.*

*If support for the RWHAP was removed, **at least 132,651 RWHAP clients (22% of all RWHAP clients)**, and **all 2,164 HIV providers** supported by the RWHAP would be negatively impacted. This removal of support would greatly reduce the number of PLWH who are receiving HIV medical services and treatment in the **United States**.*



Extension of Impact Statement to National Data

*For PLWH, receipt of HIV treatment improves quality of life, increases life expectancy, and reduces morbidity and mortality. The reduction in PLWH receiving HIV medical services and treatment could result in **5,220 additional deaths among PLWH** in the **United States** in 1 year, above and beyond the average number of deaths that typically occur in 1 year (approximately 16,961 deaths).*

*Receipt of HIV treatment also prevents HIV transmission. The reduction in PLWH receiving HIV medical services and treatment could result in **3,077 additional HIV cases** in the **United States** in 1 year, above and beyond the average number of new HIV cases that typically occur in 1 year (approximately 43,735 new cases). These 3,077 additional HIV cases could result in **approximately \$1.43 billion additional lifetime HIV care and treatment costs**.*



Dissemination and Next Steps

- Incorporate feedback from recipients and external stakeholders
- Make model results available to recipients upon request
- Update model as new data inputs become available

Contact Information

Pamela Klein, MSPH, PhD

Health Scientist, Division of Policy and Data (DPD)

HIV/AIDS Bureau (HAB)

Health Resources and Services Administration (HRSA)

Email: pklein@hrsa.gov

Phone: 301-443-5545

Web: hab.hrsa.gov





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