***The Georgia Department of Public Health***

**Fact Sheet: HIV Transmission Category**

**What is multiple imputation?**

**Why collect HIV behavioral risk information?**

Recording behavioral risk factors associated with HIV infection helped identify the mode of HIV transmission (e.g., blood and bodily fluids) and was crucial in identifying populations at increased risk for HIV infection. This has been critical in developing key action steps to prevent transmission (i.e., screening blood donations), and focusing prevention and treatment interventions for sub-populations at increased risk for HIV infection

Multiple imputation (MI) is a statistical approach in which missing transmission categories for each person are replaced with plausible values that represent the uncertainty regarding the actual, but missing, values.

This is the same statistical strategy that the CDC uses to assign transmission categories to those reported without a risk factor in the national dataset.\*

**How is transmission category identified?**

Risk factor reporting by providers who care for people living with HIV is the critical first step. The HIV Case Report form contains several questions about sexual behavior and injection drug use.

Although a person can have multiple risk factors, CDC recommends categorizing the risk factor information on each surveillance record according to a hierarchy. In descending order of priority, these hierarchical categories are:

* Male-to-male sexual contact (MSM)
* Injection drug use (IDU)
* MSM and IDU (MSM/IDU)
* Heterosexual contact or HET (contact with a person known to have, or to be at high risk for HIV infection)
* Other (includes hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified)

**How does using MI affect accuracy?**

Whether these transmission category adjustments using MI introduce any bias in overestimation or underestimation of percentages of HIV infection attributed to specific categories is unknown.

It is always best to have the actual data. Health care providers are strongly encouraged to report risk factor information on the Georgia HIV Case Report Form.

In 2012, the Georgia DPH examined the HIV Care Continuum stratified by transmission category with and without using MI.

The HIV Care Continuum examines the proportion of people living with HIV in Georgia who have been:

* Engaged in care (at least 1 CD4 count or viral load [VL] in 12 months)
* Retained in care (at least 2 CD4 or VL at least 3 months apart in 12 months) and
* Virally suppressed (VL <200 copies or undetectable on last VL)

**What is the Georgia HIV Care Continuum?**

**What if no risk factor information is reported?**

Unfortunately, a substantial proportion of persons with diagnosed HIV infection are reported to the Georgia Department of Public Health without an identified risk factor. In those cases, multiple imputation methods are used to assign the likely transmission category

\*Harrison KM, Kajese T, Hall HI, Song R. Risk factor redistribution of the national HIV/AIDS surveillance data: an alternative approach. Public Health Rep 2008;123:618–27.

October 2013

2 Peachtree Street, Atlanta, Ga 30303 | health.state.ga.us

**HIV Transmission Category Fact Sheet 2012**

Missing data is an ongoing problem in routinely-collected surveillance data.

A substantial proportion of persons with HIV infection are reported to the Georgia Department of Public Health without identified risk factors.

Multiple imputation is a statistical method used to assign transmission category where missing. These cases were previously presented in Georgia’s surveillance reports as no identified risk or no reported risk (NIR/NRR).

Because multiple imputation (MI) preserves the statistical distribution of the imputed variable and its relationship with other variables in the imputation model, CDC considers this the best choice for transmission category estimation for those missing risk factor information.

The Care Continuum proportions remain similar when MI is used (Figure 1) and not used (Figure 2).

The two figures below compare the Care Continuum proportions by transmission category with and without using multiple imputation (MI) for missing risk information

\*

Engaged in care >= 1 CD4 or VL in 2012

Retained in care >= 2 CD4 or VL at least 3 months apart in 2012

Viral suppression (VS) = VL<200 copies/ml

MSM = Male to male sexual contact

IDU = Injection drug use

MSM/IDU = Male to male sexual contact and injection drug use

Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

Other = hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified

**Figure 2: Adult and adolescent males living with HIV, by transmission category, no multiple imputations, Georgia, 2012**

Engaged in care >= 1 CD4 or VL in 2012

Retained in care >= 2 CD4 or VL at least 3 months apart in 2012

Viral suppression (VS) = VL<200 copies/ml

***We Protect Lives.***



**HIV Transmission Category Fact Sheet, 2012e2012 HIV Transmission Category Fact Sheet 2012**

**HIV Reporting Law in Georgia**

* All health care providers diagnosing and/or providing care to a patient with HIV must by law report HIV infection using the HIV/AIDS Case Report Form (O.C.G.A. §31-12-2(b)).
* Case report forms must be completed within seven (7) days of diagnosing a patient with HIV and/or AIDS or within seven (7) days of assuming care of an HIV-positive patient who is new to the provider, regardless of whether the patient has previously received care elsewhere.
* **Adult and Pediatric case report forms** **are available at**

<http://dph.georgia.gov/reporting-forms-data-requests>

* **For more questions on HIV case reporting in Georgia please contact the** HIV Surveillance Coordinator at **1-800-827-9769**

MSM = Male to male sexual contact

IDU = Injection drug use

MSM/IDU = Male to male sexual contact and injection drug use

HET = Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.

Other = hemophilia, blood transfusion, perinatal exposure, and risk factor not reported or not identified

**Males living with HIV by transmission category, Georgia, 2011**

**Females living with HIV by transmission category, Georgia, 2011**

*The most common ways HIV is transmitted in Georgia are through unprotected anal or vaginal intercourse and exposure to HIV through shared injection drug equipment. Without continued reporting of risk factor information, we cannot accurately monitor changing trends in HIV infection, discover new modes of HIV transmission, and identify disparities in HIV prevention and care.*

***We Protect Lives.***

**HIV Transmission Category Fact Sheet 2012**

For more information on HIV surveillance in Georgia, visit

<http://dph.georgia.gov/georgias-hivaids-epidemiology-surveillance-section>

The *HIV Transmission Category Fact Sheet* is published by the Core Surveillance Unit, HIV/AIDS Epidemiology Section, Epidemiology Program, Division of Health Protection, Georgia Department of Public Health. It is not copyrighted and may be used and reproduced without permission. Citation of the source is appreciated

**Suggested citation:**

Georgia Department of Public Health. HIV Transmission Category Fact Sheet, 2012

<http://dph.georgia.gov/georgias-hivaids-epidemiology-surveillance-section>.

Published October 2013, Accessed [date]

**Acknowledgements**

Publication of this report would not have been possible without the hard work and contribution of the Core Surveillance Unit, HIV Epidemiology Section, Epidemiology Program, Division of Health Protection, Georgia Department of Public Health: Marguerite Camp, Raimi Ewetola, Thelma Fannin, Denise Hughes, Rodriques Lambert, Delmar Little, Sheila Maxwell, Mildred McGainey, Latoya Moss, A. Eugene Pennisi, Deepali Rane, Akilah Spratling and Eina Walker.

This report was prepared by Jane Kelly, MD; Ty Weng; Cherie Drenzek, DVM, MS.

**Sheet 2012**

***We Protect Lives.***

