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Efforts Targeting Factors of Health Disparities that Impair HIV Treatment Engagement

Graham F Watts, Sr., PhD & Heather Vaughan, MS, CRC

ABSTRACT

Health disparities exist in Northeast Florida. Some locations experience morbidities at higher rates than others. Health zone 1 is a prime example. Differences in disease rates are interlaced with the social determinants of health, (SDOH). Long-standing social and structural influences of disparities are beyond the scope of Ryan White programs. However, empowerment for health promotion is a strategy for targeting health disparities. The Theory of Health Empowerment targets sense of agency and offers some leverage for helping people living with HIV/AIDS, (PLWHA) despite environments blemished by SDOH. Eclectic leadership occurring in a climate of respectful point-counter point discussions established the context for implemented projects in Northeast Florida. Nine activities directed efforts to reduce disparities. These activities are in the infancy stage of development. Some successes have been achieved, but much more remains to be accomplished to increase overall viral suppression above the 80% threshold. Directions for the future suggest that perhaps external influences of federal Ryan White Parts may be a catalyst for incentivizing the JTGA to participate in national efforts to reduce health disparities. Opportunities to strengthen understanding of approaches to nullify SDOH using science-based approaches hold promise to pursue health equity in treatment cascade outcomes for PLWHAs.

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BACKGROUND

Geographic location affects health disparities—difference in disease burdens (Braveman, 2006). It sounds cliché, but conversations by health services researchers and public health practitioners alike, suggest that where one lives “...plays a role in shaping environmental risks as well as many other health effects” (Dummer, 2008, p. 1177). In 2013, Florida Department of Health, Duval published a report titled, *Place Matters*. The report highlighted poignant differences in health outcomes among residents of different, local geographic areas. For example, residents of “...Duval County’s health zone 1, (HZ1), the urban core, [had] the shortest life expectancy regardless of race or gender; ...[and] the disparity... [evidenced] a 10-year difference between HZ1 and HZ3”

(<http://duval.floridahealth.gov/newsroom/2013/09/3-2-1-1-place-matters-2013.html>).

Epidemiology is interconnected with the social determinants of health—SDOH, conditions of the natural habitat that influence health status (<https://www.cdc.gov/socialdeterminants/>, Dean & Fenton, 2010). SDOH influencing factors are

structural, economic, social, and political in nature (Burda, Drew, & Stover, 2017). This collection of determinants of health are not easily amenable to brief or episodic individual level interventions that focus on behavior change. Therefore, planned community efforts to improve the health of historically disadvantaged groups must consider social and cultural norms and how these forces combine to either motivate or constrain risky or protective health behaviors (Hobfoll & Schumm, 2002). In other words, multiple factors support conditions of health and disease in free standing communities that call attention to addressing the etiology of multiple health behaviors (Prochaska, Spring, & Nigg, 2008). It is, therefore, no longer acceptable to assert that SDOH is beyond the purview of health-related programming (Dean & Fenton, 2010).

Public health indexes regional health disparities. Diagnoses of differences in people living with HIV and AIDS, (PLWHAs) is one example. Of four U.S. regions, HIV diagnosis rates per 100,000 people were “...highest in the South, (16.8), followed by the Northeast, (11.2), the West, (10.2), and the Midwest, (7.5)

(<https://www.cdc.gov/hiv/statistics/overview/ataglance.html>). The Centers for Disease Control and Prevention, (CDC), HIV prevention focus clearly indicates that disparities in HIV in the southern United States is a public health crisis of significance. In *HIV in the Southern United States—CDC Issue Brief, updated May 2016*, multiple factors emerged as covariates of the higher regional differences in HIV prevalence. Examples include overall worse health outcomes of residents, poverty, and income inequality, which have a long history in southern states, vis-à-vis the other geographic regions (<https://www.cdc.gov/hiv/pdf/policies/cdc-hiv-in-the-south-issue-brief.pdf>). Additionally, the risk of HIV transmission increases as rates of syphilis increase (Reif et al., 2014), which has also been highest in the South. Without writing voluminously about HIV in the South, the message that transcends HIV epidemiology is the national health policy directive that called for focusing resources on factors antecedent to and associated with HIV. Policy makers purported that targeted emphasis on the determinants of HIV "...is a necessary step in abating the epidemic" (Reif et al., 2014, p. 356). Perhaps, this emphasis also has HIV treatment involvement and adherence value. Focusing on "...the broader structural— economic or social—factors that shape or constrain individual behavior..." (Gupta, Parkhurst, Ogden, Aggleton, & Mahal, 2008, p. 764) is overdue. *The Future of the Public's Health In the 21st Century* aligns with embracing multiple determinants of population health (https://www.cdc.gov/nceh/ehs/ephli/Resources/Future_of_Public_Health_Exec_Summ_2002.pdf).

Addressing disparities requires altering how PLWHAs relate to SDOH. Depleted social structures— "...the rules and resources upon which action and interaction can be built" (Williams, 2003, p. 133)— diminish knowledge, skills, attitudes, and behaviors that promote sense of agency, (SOA), — "...the feeling of control over actions and their consequences" (Moore, 2016, p. 1). Therefore, the decline in SOA is a catalyst for disempowerment, which has linkages to low self-confidence and a decrease of influences for directing one's life-course (Elder, 1994). The Theory of Health Empowerment, (TOHE), offers a way to dismantle the linkages between disparities, the social structures that underlie SDOH, and a diminished SOA (Shearer, 2009).

...Health empowerment... [emerges] from a synthesis of personal resources and social-contextual resources. Personal resources reflect unique characteristics of... adults such as self-capacity, [for example, latent strengths and assets, uncovered through strengths-based assessments]. Social-contextual resources include support from social networks and social services support. [These include groups such as Peer Navigators,

Community Connections and funded Outreach, Food Pantry and Transitional Housing services]. Empowerment from this perspective is a dynamic health process that emphasizes purposefully participating in a [method] of changing oneself and one's environment, recognizing patterns, and engaging inner resources for well-being.

Empowerment strengthens personal and interpersonal capacities for reducing disparities. Thus, the JTGA focused on transforming PLWHAs experiences despite the SDOH environments. Specific aims of empowerment activities included building confidence and catalyzing self-determinism, defined here as selecting actions for achieving goals through therapeutic relationships with helping professionals, (Vansteenkiste, Lens, & Deci, 2006), and access to a panoply of services. From an intervention perspective, empowerment personifies facilitated within-and between-persons makeover that result in expanded capacities for acting to positively change how one experiences life (Carr, 2003). In doing so, the Jacksonville Transitional Grant Area, (JTGA), described elsewhere, (<http://www.coj.net/departments/parks-and-recreation/social-services/ryan-white-c-a-r-e-act-part-a>), sought to rip to shreds the passivity that makes one a prisoner of life's circumstances and instead strengthen decisions and choices that disrupt imprisonment in a set of circumstances.

Purpose

The purpose of this retrospective, descriptive, cohort study is threefold. Identify activities among JTGA HIV/AIDS health services providers that

- A. Mobilize PLWHAs to alter their position of real or perceived entrapment in environments steeped in SDOH,
- B. Address psychosocial, (individual and social), factors that are concurrent with HIV infection, and
- C. Reduce barriers that cause attrition from selected points on the HIV Treatment Cascade, a.k.a., HIV Continuum of Care, (HCC)— linkage, retention, on antiretrovirals, and viral suppression

(<https://www.cdc.gov/hiv/images/library/infographics/continuum-infographic.png>).

Health disparities are well documented in Northeast Florida. Therefore, unveiling the coordinated efforts by the jurisdiction to move beyond awareness of health disparities to taking actions to reduce risk factors and strengthen protective factors in the population of in-care, HIV positive clients has merits. Public dollars support HIV health services, and research focused on how public dollars target the root, or intermediate causes of public health problems are

appropriate for identification of intervention gaps to inform future planning for system improvements.

METHODS

Nine funded Ryan White Part-A service providers and other unfunded stakeholders contribute to year-round, programmatic activities. Leadership for engagement in programmatic activities come from the JTGA HIV Health Services Planning Council, the Ryan Part-A Administrative Agency, First Coast Community AIDS Prevention Partnership, (FCCAPP), and executive directors of Ryan White funded agencies. The guiding framework for local activities that aim to mitigate health disparities are five-fold:

- A. Scoping,
- B. Benchmarking,
- C. Analysis,
- D. Synthesis and reporting, and
- E. Project development. A brief discussion of each follows.

Scoping identifies issues and challenges in the network through site visits, CAREWare monitoring, planned stakeholder meetings, and review of the HIV health services literature. Benchmarking identifies a standard of comparison for evaluating progress or the lack thereof. Analysis transforms data into information for decision-making. Synthesis and reporting share information with key stakeholders to trigger discussions, understanding, and consensus for taking actions to effect change. Finally, Project Development is mobilization and coordination of resources to transform action-oriented consensus into improvements along the middle of the continuum of HIV care: linkage, retention, and On-ART. This five-phased approach to reducing health disparities among PLWHAs and disparities in HIV care outcomes among subgroups of PLWHAs used the following activities:

1. Locating sub-groups with metrics below established benchmarks
2. Evaluating distributive justice of medical case management services
3. Identifying barriers to HIV care associated with poverty status
4. Addressing gaps created by the social determinants of health
5. Monitoring HIV-related health outcomes among Minority AIDS Initiative populations
6. Tracking & tracing PLWHAs lost-to-care
7. Community and HIV Care Reentry Services, (CHCRS)
8. Focusing on gaps in PLWHAs maintenance of private health insurance coverage
9. Focusing on gaps in consumption of nutritious food for metabolism of antiretroviral therapy

RESULTS

Figure 1 presents five-year data trends, (2013 to 2017), for 4,000+ in-care PLWHAs, enrolled in Northeast Florida Ryan White Part-A funded programs. Data for these programs come from City of Jacksonville, (COJ), “CAREWare... electronic health and social support services information system...” (<https://hab.hrsa.gov/program-grants-management/careware>). Trend lines of best fit for the HCC stages, represented on the x-axis of Figure 1, provide an average, quantifiable comparison of PLWHAs who did not experience viral suppression—the lower levels of viremia associated with diminished transmission of HIV (Wilson, Law, Grulich, Cooper, & Kaldor, 2008). A reduction in the average percentage rate of decline across HCC stages, from linkage to viral suppression, moved from 10.97% in 2013 to 5.62% in 2017, almost a 50% decline, ($\{10.97-5.62\}/10.97$).

Table 1 presents percentages of subgroups with HIV treatment cascade metrics below the average for all in-care PLWHAs documented in City of Jacksonville CAREWare instance in calendar year 2017. In the JTGA, linkages to HIV care after diagnosis, (96.7%), in-care (92.3%), on-antiretrovirals—On ART, (87.2%), and viral suppression, (79.7%), describe the overall health-and-social systems performance for the 4,256 enrolled clients in 2017. *National HIV/AIDS Strategy, (NHAS), for the United States, updated to 2020, Indicator Supplement, December 2016* identified in-care and viral suppression benchmarks. Indicator five reads, “Increase the percentage of persons with diagnosed HIV infection who are retained in HIV medical care to at least 90 percent;” [and] indicator six reads, “increase the percentage of persons with diagnosed HIV infection who are virally suppressed to at least 80 percent” (<https://www.hiv.gov/sites/default/files/nhas-indicators-supplement-dec-2016.pdf>). In contrast, *UNAIDS 90-90-90 target for 2020 to end AIDS by 2030* reads, in-part, “90% of all those who are diagnosed HIV positive to be on sustained antiretroviral treatment” (<http://i-base.info/htb/27174>). Several shortfalls, occurred during 2017, based on the national and international guidelines. Males, transgender, and 13 to 34-year-olds did not meet the NHAS Indicator 5 requirement. In addition to the previously mentioned groups, African-Americans, other minorities, and 35 to 54-year-olds did not meet the UNAIDS and the NHAS Indicator 6 requirements.

Figure 2 presents metrics for JTGA PLWHAs on two HIV/AIDS Bureau, (HAB), clinical performance measures, (CPMs), for three services. HAB 01 and 02 are CPMs. HAB 01 denotes “percentage of clients with HIV... with two or more medical visits... in the

measurement year [at least 90 days apart]” (<https://hab.hrsa.gov/sites/default/files/hab/clinical-quality-management/archivedadolescentadult.pdf>).

HAB 02 denotes “percentage of patients... with... HIV/AIDS, with at least two *CD4 cell counts or percentages*... during the measurement year at least three months apart”

(<https://hab.hrsa.gov/sites/default/files/hab/About/clinical-quality-management/archivedallages.pdf>).

MCM, AIDS Phar Asst, and OAMC are service identifiers. MCM denotes “percentage of medical case management, (MCM), patients, regardless of age, with a diagnosis of HIV who had an *MCM plan* developed and/or updated two or more times in the measurement year”

(<https://hab.hrsa.gov/sites/default/files/hab/clinical-quality-management/mcmmeasures.pdf>).

AIDS Phar Asst is AIDS Pharmaceutical Assistance, the “local pharmacy Assistance Program, (LPAP), ...[operated by] Ryan White Part A or B recipient or subrecipient [offering] supplemental... medication assistance when an AIDS Drug Assistance Program has a restricted formulary, waiting list or restricted financial eligibility criteria”

(<https://hab.hrsa.gov/sites/default/files/hab/landscape-webinars/020316servicecategorieswebinar.pdf>).

OAMC is “Outpatient/Ambulatory Health, (medical), Services provided... to a client... in a... medical setting..., [excluding] emergency room or urgent care [context]...”

(https://hab.hrsa.gov/sites/default/files/hab/program-grants-management/ServiceCategoryPCN_16-02Final.pdf).

Rates of participation in the three HIV services by two medical care service indicators evidenced greater than 90% involvement, ranging from a low 92% to a high 98% during 2017.

Table 2 presents groups overrepresented in major barriers to utilization of HIV health services in 2017. The top four barriers of access to HIV health services were transportation, income, mental health, and stigma, (TIMS). Overrepresented means metrics are greater than the JTGA’s average. Females and transgendered people reported a transportation barrier in excess of the JTGA’s average, and PLWHAs in the 13 to 44 years age group reported an income barrier in excess of the JTGA’s average. A self-reported mental health barrier in excess of the JTGA’s average existed for female, transgender, white, other, (neither white nor black), and PLWHAs 13 to 44-year old age-group. Overrepresentation in stigma barriers were less severe for transgender and white PLWHAs than the other groups.

Figure 3 presents percentages of JTGA PLWHAs with ambulatory medical care visits, (HAB 01), by documented participation in four support services: foodbank, transitional housing, emergency financial assistance, and medical transportation. These support

services aim to mitigate the influences of ecologic variables that are central to SDOH. If the utilized services addressed the care conflict needs of PLWHAs, then higher involvement in ambulatory medical care should occur. Figure 3 metrics at the 90%+ levels offered support for the jurisdiction’s expectation that satisfaction of survival needs paved the way for attention to HIV primary medical care. Transitional housing, however, was less indicative of the jurisdiction’s expectation. Clients who used transitional housing fell slightly below the 90% threshold for HAB 01 documentation. In contrast, foodbank, (93%), medical transportation, (96%), and emergency financial assistance, (99%), each had HAB 01 CAREWare documentation upwards of 90%.

Table 3 shows treatment cascade outcomes for JTGA Minority AIDS Initiative, (MAI), target groups in calendar year 2017. The inclusion of two target groups received strong support from the Medical Expenditure Panel Survey of 2003-2006. African-Americans had the worst health profiles and excess expenditures on direct medical costs associated with health inequities (LaVeist, Gaskin, & Richard (2009). Judged by the National HIV/AIDS Strategy, (NHAS), Indicator 5, (at least 90% of PLWHAs in-care), Indicator 6, (at least 80% of in-care PLWHAs virally suppressed), and UN AIDS—at least 90% of PLWHAs on ART—standards, not all MAI groups benefitted equally from available core and support services. Youth, minority, (non-white), MSMs, and African-American MSMs greater than 24 years old fell behind females and African-American females for percentages on On-ART and viral suppression. Although the lag is a few percentage points, (less than 5%), it nonetheless indicates that more work must be done with the indicated groups.

The JTGA has an active Search and Rescue Operations, (SARO), program to find PLWHAs lost to care. Diminution of coping resources such as self-esteem, optimism and social support, (Taylor & Stanton, 2007), are risk factors of attrition—unplanned care holidays. Self-care responsibilities in HIV varies by acuity level, which can increase the complexity of self-management tasks. For some PLWHAs, the increased burden of self-care management may diminish coping resources and care engagement. Thus, the JTGA implemented SARO to track, locate, and reconnect PLWHAs to Ryan White services. In 2017, SARO reconnected 130 PLWHAs to primary medical care. The results of this work are profound. Average and median CD4 cell counts were 547 and 508, respectively, with a standard deviation of 308. The standard deviation is large because of the wide range in the distribution of CD4 values, (minimum = 9, maximum = 1585). Despite the variability, the majority, (70%), had an undetectable viral load, 3% experienced viral suppression, but 27%

did not achieve suppression. The odds of being undetectable was two times higher, (2.03), for non-white than white PLWHAs. In contrast, the lack of viral suppression was almost three times, (2.89), higher for non-white than white PLWHAs. A similar pattern existed for males relative to females.

Figure 4 presents percentages of JTGA formerly incarcerated/detained PLWHAs relinked to HIV care and services. The metrics provided here came from the Community and HIV Care Reentry Services, (CHCRS), program. In 2017, the JTGA CHCRS program screened 131 PLWHAs detained at the Duval County Pre-Trial Detention Facility. Prior to release from detention, 83% enrolled in CHCRS. This early enrollment process permitted alignment of linkage resources so that upon release, 82% of enrollees received medical case management, 58% received 90-days transitional housing, 33% received mental health services, and 29% participated in workforce employment services.

Table 4 presents percentages of JTGA Health Insurance Premium Assistance Program, (HIPAP), metrics by poverty status and treatment cascade outcomes. These data highlight the results of local efforts to ensure no gaps exist in working poor PLWHAs maintenance of private health insurance coverage. In 2017, 7%, (n=288), of JTGA's PLWHAs were among the working poor who received HIPAP. Metrics for overall *On-ART* and *viral suppression* exceeded the JTGA's average by 7.6% and 5.4% respectively. However, PLWHAs in the lowest poverty level, (1/4), only exceeded the JTGA's average viral suppression by 2% compared to peers in the highest poverty level, (> 301%), who exceeded the JTGA's viral suppression by 10.9%. Although poverty level did not separate PLWHAs on treatment cascade outcomes, race and age group did. *Table 5*, (abridged), presents stratification analyses for socio-demographics variables: gender, race, age-groups, and MAI populations. The unabridged version of Table 5 had 15 rows and four columns for all the measured levels of the socio-demographic variables. Only PLWHAs identified as *others—neither white nor black*, (n=8, ≈ 3.0%), and those in the *25 to 34 years age group*, (n=41, 14.2%), had On-ART and viral suppression percentages below the JTGA's average and the HIPAP group average.

Table 6 presents cluster of differentiation 4, (CD-4), T-cell counts and viral suppression rates for JTGA foodbank clients in 2017. These data focus on closing gaps in consumption of adequate quantities of nutritious food for overall well-being and metabolism of antiretroviral therapy (Ivers et al., 2009; Weiser et al., 2011). The JTGA funded Foodbank and Nutrition services to address the unmet needs of 11%, (480/4256), of in-care PLWHAs. Of the 480 clients who used foodbank services in 2017, 66% were in the

lowest federal poverty level, (< 101% FPL). Among PLWHAs in the lowest poverty level, average CD4 cell count was lower than PLWHAs in higher poverty levels, but almost twice as many PLWHAs at the lowest poverty achieved viral suppression. Group size was small for transgender but adequate for race and gender. Excluding transgendered people from the comparison, the CD4 cell counts were on par and more males compared to females experienced viral suppression. Similarly, white and black PLWHAs had comparable CD4 cell counts, but significantly more blacks, (58%), than whites, (17%), experienced viral suppression.

Table 7 presents outcomes effectiveness analysis of programs and interventions to address health-related disparities in the JTGA. Superscripts, (integers one and two), represent two separate ambulatory contexts in which the majority of disparities interventions occurred. The classification category identified as "Highly Effective" identifies the most impactful programs and intervention—referring to the power of each intervention to help clients overcome barriers, stop attrition, and transition across the Continuum of Care. Almost 1/4, (23.8%, n=5), of the 21 programs were highly effective in one context and almost 2/3, (62%, n=13), were highly effective in both contexts. Support groups was the only disparities intervention rated minimally effective. Overall, 90%, (19 of 21), of the disparity's interventions were highly effective in at least one context, which suggests that the JTGA has some useful strategies for promoting HIV care engagement.

DISCUSSION

Macro analyses show that overall, five-year temporal trends in viral suppression has moved in the desirable direction. More PLWHAs experienced the salutary benefits of ART therapy in the five-year period from 2013 to 2017. This positive pattern is not, however, a cause for complacency because racial and ethnic minorities continue to bear a disproportionate share of the burden of premature mortality, lost productivity, and direct medical costs associated with HIV infection (Hutchinson et al., 2006). Local findings supported the notion that not everyone benefitted equally in the HIV system of care in Northeast Florida in 2017. Fewer PLWHAs in groups defined by gender, (male and transgender), age, (13 to 44 years), minority and African-American adult men who have sex with men, and those with barriers to care such as income, stigma, transportation and mental illness fall behind in the full benefits of care engagement.

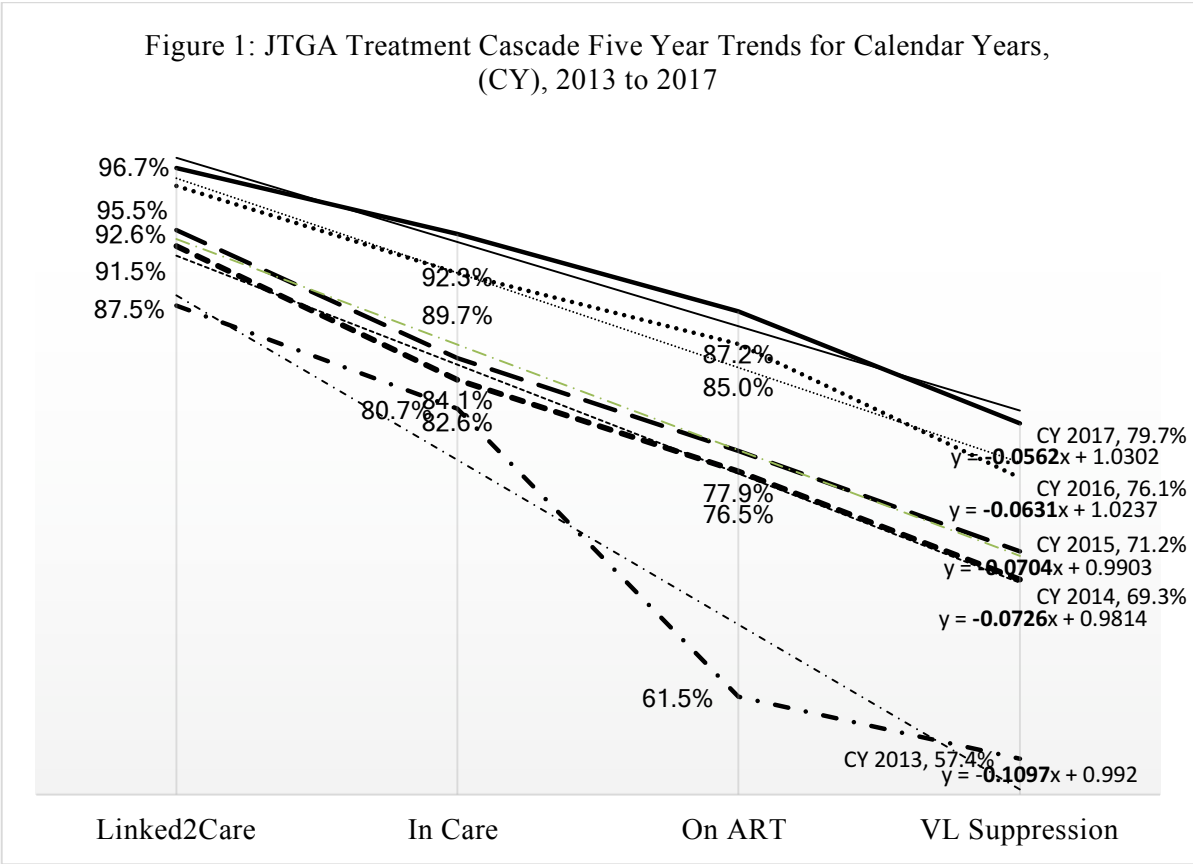


Table 1: Stratification of JTGA Treatment Cascade Outcomes by Demographics in 2017

Sub-Groups With Lower Performance	Linked to Care	In Care (NHAS \geq 90%)	On ART (UN AIDS = 90%)	VL Suppression (NHAS \geq 80%)
JTGA (N=4256)	96.7%	92.3%	87.2%	79.7%
Male (n=2571)	96.4%	91.6%	86.7%	79.0%
Transgender (n=55)	92.7%	89.1%	85.5%	74.5%
Black (n=3077)	96.7%	92.6%	87.0%	79.7%
Other (n=132)	96.2%	92.4%	87.9%	77.3%
13-24 Years (n=200)	96.5%	89.5%	85.5%	76.5%
25-34 Years (n=786)	94.3%	86.5%	84.1%	74.4%
35-44 Years (n=870)	95.4%	92.6%	86.9%	78.6%
45-54 Years (n=1183)	97.1%	93.2%	87.3%	79.9%

Figure 2: Percentages of JTGA PLWHAs with HAB 01 & 02 Documentation by Three Core Services In 2017

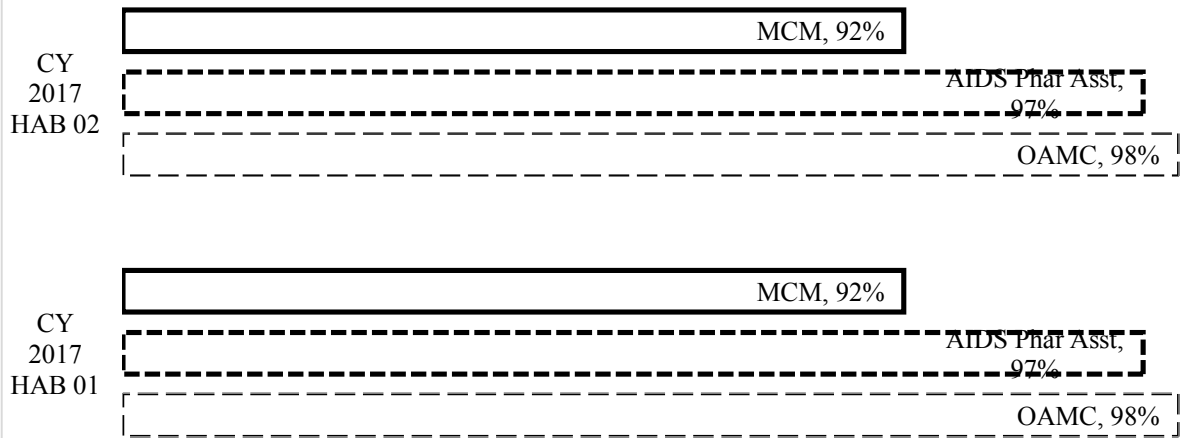


Table 2: Groups Overrepresented in JTGA's Top Four Barriers to HIV Health Services in 2017

Groups	Transportation	Income	Mental Health	Stigma	Percentage of Barriers
TGA Aggregate (N=1159)	38%	41%	12%	9%	100%
Female (n=416)	41%	34%	13%	12%	100%
Transgender (n=23)	48%	30%	22%	0%	100%
White (n=379)	33%	46%	14%	7%	100%
Other (n=28)	29%	36%	21%	14%	100%
13-24 Years (n=24)	21%	42%	21%	17%	100%
25-34 Years (n=166)	27%	47%	13%	13%	100%
35-44 Years (n=241)	32%	44%	15%	10%	100%

Figure 3: Percentages of JTGA PLWHAs with HAB 01 Documentation and Utilization of Support Services to Reduce HIV-Related Disparities in 2017

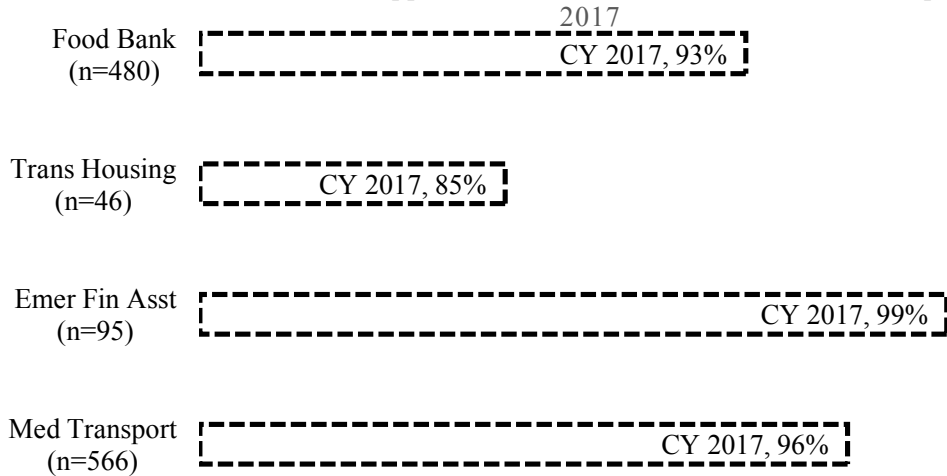


Table 3. Treatment Cascade Outcomes for JTGA Minority AIDS Initiative Target Groups in 2017							
Target Populations	Group Size	Linked to Care	In Care (NHAS Ind 5 \geq 90%)	On ART (UN AIDS = 90%)	VL Supp (NHAS Ind 6 \geq 80%)	Cascade Leakage	Census Percentage
JTGA Aggregate	4256	96.7%	92.3%	87.2%	79.7%	-17.0%	100%
Female	1630	97.3%	93.5%	88.0%	81.0%	-16.3%	38.3%
African-American Females >24 Years	1097	92.9%	97.0%	87.5%	80.0%	-12.9%	25.8%
Youth 13-24 Years	200	96.5%	89.5%	85.5%	76.5%	-20.0%	4.7%
MSM/MSM-IDU (Non-White)	1001	94.7%	90.2%	85.3%	75.8%	-18.9%	23.5%
African-American MSM >24 Years	861	95.5%	91.3%	85.5%	77.9%	-17.5%	20.2%

Figure 4: Percentages of JTGA Formerly Incarcerated/Detained PLWHAs Relinked to HIV Care and Services in 2017

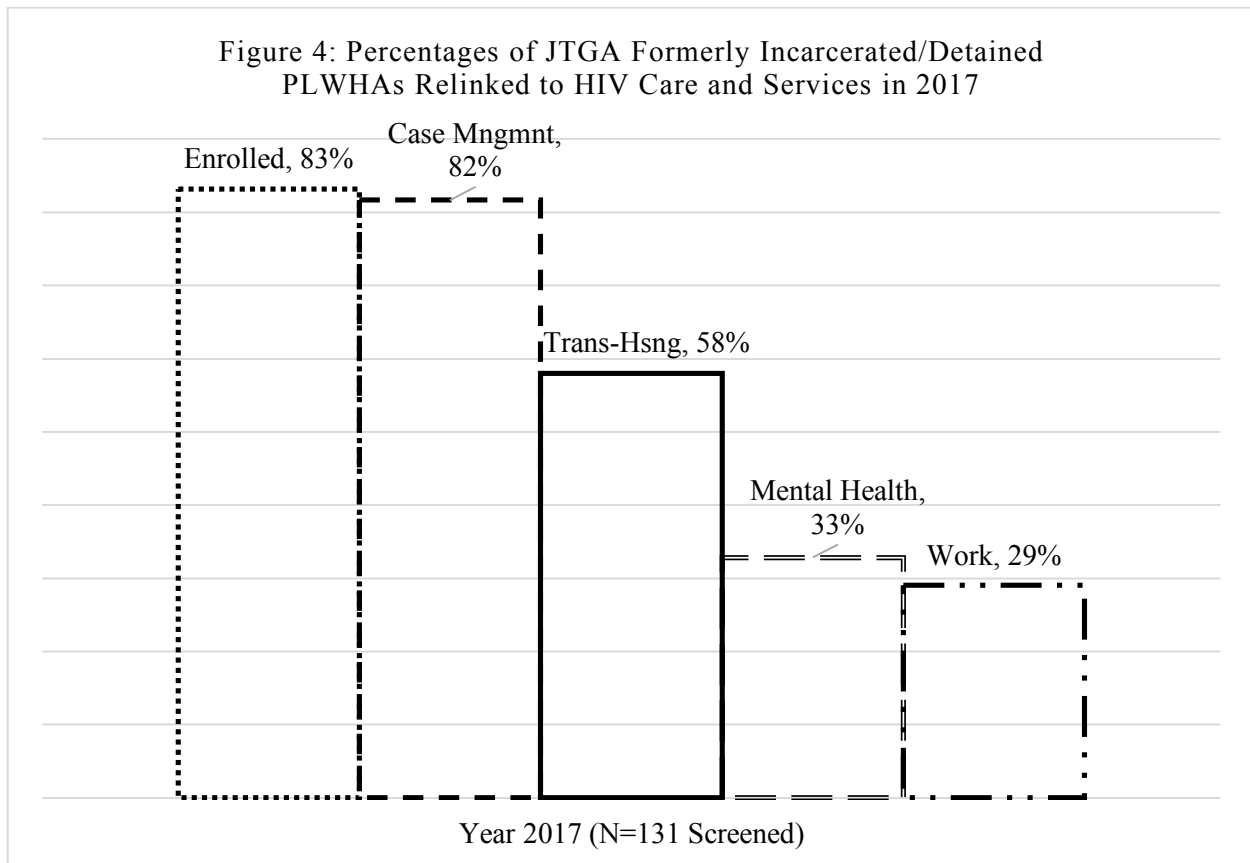


Table 4: Percentages of JTGA Health Insurance Premium Assistance Program Clients by Poverty Status and Treatment Cascade Outcomes in 2017

Census & Groups	Linked to Care	In Care (NHAS Ind 5 \geq 90%)	On-ART (UN AIDS = 90%)	VL Suppression (NHAS Ind 6 \geq 80%)	Percentage of Group
JTGA (N=4256)	96.7%	92.3%	87.2%	79.7%	100%
HIPAP (N=288, 6.8%)	100.0%	100.0%	94.8%	85.1%	100%
< 101% FPL (n=71)	100.0%	100.0%	94.4%	81.7%	25%
101 - 150% FPL (n=52)	100.0%	100.0%	94.2%	84.6%	18%
151 - 200% FPL (n=53)	100.0%	100.0%	94.3%	86.8%	18%
201 - 250% FPL (n=53)	100.0%	100.0%	94.3%	84.9%	18%
251 - 300% FPL (n=27)	100.0%	100.0%	96.3%	85.2%	9%
> 301% FPL (n=32)	100.0%	100.0%	96.9%	90.6%	11%

Table 5: Percentages of JTGA HIPAP Metrics by Demographics and Treatment Cascade Outcomes in 2017

Census & Groups	Linked to Care	In Care (NHAS Ind 5 \geq 90%)	On-ART (UN AIDS = 90%)	VL Suppression (NHAS Ind 6 \geq 80%)	Percentage of Group
JTGA (N=4256)	96.7%	92.3%	87.2%	79.7%	100.0%
HIPAP (N=288)	100.0%	100.0%	94.8%	85.1%	100.0%
25-34 Years (n=41)	100.0%	100.0%	85.4%	75.6%	14.2%
Other (n=8)	100.0%	100.0%	87.5%	75.0%	2.8%

Table 6: CD4 and Viral Suppression Outcomes for JTGA Food Bank Program Clients in 2017

Group Size	Percentage Federal Poverty	Count	Mean CD4	Viral Load, (VL), Suppression	VL 95% Conf. Interval, Lower	VL 95% Conf. Interval, Upper
460	<101 (n=316)	316	608	52%	47%	57%
	>100 (n=144)	144	703	27%	23%	31%
480	Female	205	645	33%	29%	37%
	Male	266	623	43%	39%	47%
	Trans	9	871	2%	Group size too small for comparison	
480	White	104	663	17%	14%	20%
	Black	365	634	58%	54%	62%
	Other	11	487	1%	Group size too small for comparison	

JTGA Disparities Interventions in 2017	Effectiveness (Perceived Measure of Impact)		
	High	Moderate	Low
1. Early Intervention Services (testing, referral, counseling, access & linkage to care)	X ¹		
2. Risk Screenings	X ¹		
3. Medications Management	X ¹⁻²		
4. Support Groups Exposure		X ²	X ¹
5. Assessment of Readiness for Care Engagement	X ²	X ¹	
6. Reappointment Reminders	X ¹⁻²		
7. Post Scheduled Appointment Follow-Ups	X ¹⁻²		
8. Missed Appointment Rescheduling		X ¹⁻²	
9. Identification of Barriers to Retention in Care	X ¹⁻²		
10. Identification of Barriers to Medication Adherence	X ¹⁻²		
11. Identification of Barriers to Care Engagement	X ¹⁻²		
12. Individualized Service Plan, (IS), to Address Barriers to care engagement	X ¹⁻²		
13. ISP Monitoring for identification of care patterns and clinical outcomes for follow-ups related to client education, self-efficacy nurturance, and behavior modification	X ¹⁻²		
14. Case Conferencing/Staffing	X ²	X ¹	
15. Service Coordination, (Bundled Appointments)	X ¹⁻²		
16. Between Appointments Follow-Ups	X ¹⁻²		
17. Transportation Assistance	X ¹⁻²		
18. Relinkage to HIV Care after Non-Institutionalized Attrition	X ¹⁻²		
19. Relinkage to HIV Care after Incarceration/Detention	X ²		
20. Monitoring Gap Measure – No HIV medical care in last 180 days	X ¹⁻²		
21. Monitoring Medical Visit Frequency Measure – No HIV medical care in last 180 days	X ²		

Exposure to SDOH, itself a risk factor for health inequities and disparities, negatively influences SOA, (Hebert, Sisk, & Howell, 2008), which underlies adverse health outcomes. Thus, services that provide relief to PLWHAs support care engagement and build capacity to make on-going positive health decisions such as healthy eating and appointment keeping. Consequently, the JTGA funded a battery of support services, which targeted at-risk PLWHAs to facilitate timely access to HIV primary medical care, medication pickups, and medication adherence.

Specific characteristics of PLWHAs are associated with less than full attainment of the benefits of treatment. Gender, (male and transgender), race, (African-American and other minorities), and age, (13 – 54-year-olds) defined PLWHAs with below threshold levels for Indicators 5 and 6 and On-ART

(Table 1). Youth, (13 to 24-year-olds), and two minority subgroups, (non-white MSMs and African-American MSMs 25-years and older), also defined PLWHAs with below threshold levels of On-ART and viral suppression (Table 3). Case management had a central role in care coordination. Although not all in-care PLWHAs are enrolled in case management, there were some case managed clients who did not accessed life-saving drugs and ambulatory HIV medical care, (Figure 2).

HIV is not the only morbidity that merits concern among PLWHAs. Psychosocial health, (Table 2), — self-esteem, sense of worth and powerfulness vs. powerlessness, (Martikainen, Bartley, & Lahelma, 2002), requires attention. The synergistic interaction of HIV infection, mental illness, and stigmatization creates a multiplicative and exponential effect, a.k.a.,

a syndemic, (Stall et al., 2003), which interrupts movement along the HIV continuum of care (Wawrzyniak et al., 2015). Ecological influences such as poverty and the absence of health insurance before HIV diagnosis sets the life course on a disadvantaged path (Reif et al., 2014; Sprague & Simon, 2014). Hence, health inequities— “...differences in the distribution of health determinants...” (<http://www.who.int/hia/about/glos/en/index1.html>) — indicated by TIMS found expression among PLWHAs defined by gender, (female and transgender), race, (white and others), and age, (13 - 44-years). Not surprisingly foodbank, transitional housing, emergency financial assistance, and medical transportation emerged as highly utilized services, (*Figure 3*).

Efforts to reduce health disparities require casting a broad safety net to plug leaks in the treatment cascade. Criminal justice detention and incarceration, (CJDI), is one leakage point that interrupts care engagement, (*Figure 4*). Correctional Managed Health Care has medical screening requirements that can prompt a referral to Department of Health HIV testing. However, this process only works if inmates voluntarily discloses and/or consents. There is a path to ensure continuity of HIV care during incarceration or detention, but despite the existence of a discernible structure and process, not all PLWHAs are in continuous HIV care during correctional accommodation. Based on these front-end challenges, on the backend, if these PLWHAs exit the correctional system without a discharge plan, a precarious state develops. Challenges include food-insecurity, unemployment, homelessness, to name a few (Nunn et al., 2010). This constellation of factors can increase risky behaviors, lengthen care holidays and worsen health status. Therefore, local efforts to mitigate challenges experienced by disadvantaged PLWHAs post incarceration or detention focused on coordination of support services to facilitate rapid care reengagement both during and after detention or incarceration.

Community reentry is a key component of sense of agency. The Consortia Advocacy Program for Relinking Incarcerated PLWHAs to Care Early, (CAPRICE), coordinates activities under an integrated umbrella of case management, mental health services, transitional housing, and workforce preparation to ease the burden of community reentry. Offering these services as a unified package ensured that some of the most vulnerable PLWHAs had a defined path to not only reconnect with HIV health services sooner rather than later but also regain a sense of personal control, often lost through criminal justice engagement.

The JTGA supported development of sense of control for working poor PLWHAs (<https://poverty.ucdavis.edu/faq/who-are-working-poor-america>). Funding of the Health Insurance Premium Assistance Program, (HIPAP), was a pivotal empowerment modality. Findings indicated that irrespective of poverty level, social equity in access to affordable health insurance improved treatment cascade outcomes. Clearly, HIPAP funding is an essential strategy for personal health maintenance and reduction of community viral load, (*Table 4*). Despite the HIPAP program merits, PLWHAs in the 25 to 34-year-old age-group and a few clients identified as other, (neither white nor black), benefitted to a lesser degree (*Table 5*).

Foodbank and nutrition psychoeducation have an essential role in disparities mitigation among PLWHAs in Northeast Florida, (*Table 6*). It has long been recognized that HIV exacerbates micronutrient deficiencies, which compromises the host nutritional status that, in turn, may impair immune functioning, which upregulates viral replication (Friis & Michaelsen, 1998). In contrast, one randomized clinical trial demonstrated that immunocompetence, as in delayed HIV progression, connects with combination vitamin supplementation (Fawzi et al., 2004). Ryan White foodbank and nutrition psychoeducation services are practical, population-based functional supports. These services lower the cost of supporting health behavior change and maintenance (James, 2004). Therefore, motivated PLWHAs who perceived the resources as relevant to their lives participated in ambulatory medical care, medical nutrition therapy, and foodbank services. Although no statements of causality can be inferred regarding foodbank and viral suppression, these data demonstrated that bringing together combinations of services for whom they are indicated and lowering the cost of access to an adequate supply of nutritious food are an integral part of identifying and reducing disparities in health outcomes among PLWHAs.

Coordinating a compendium of strategies is necessary to reduce unmet needs and health disparities among PLWHAs, (*Table 7*). The diversity of activities aimed to address needs across multiple life domains by focusing on empowerment, building strengths and using native problem-solving assets. Relying on a broad array of approaches and the interconnectedness of each aimed for possible interactions that harvest a collective effect that is greater than the sum of each. Therefore, the collection of strategies was integrated into case management and inter-agency partnerships between medical, substance-use-disorder treatment and mental health providers. As a result, services integration that

focused on client-centeredness among those with the worst medical case management acuity scores coalesced and aligned resources to achieve early stability in care engagement and reengagement.

Implications for Public Health Practice

Performance level metrics are a management tool. In other words, in the 2018 – 2019 funding cycle, the JTGA will use the results of this study to focus on identifying additional strategies, processes, methods, system characteristics, evolving PLWHAs needs, and so on to advance disparities mitigation. Two complementary approaches are in the cross-hairs of the JTGA. *Empowerment* services for in-care PLWHAs, defined by person-level characteristics should combine with *capacity development* of funded providers. This connection appears pivotal to reducing inequities in health outcomes.

The JTGA's work on disparities reduction aligns with *Health21—Health for all in the 21st century: An Introduction*. This policy document requires "...health systems to respond to the current and anticipated health conditions, [and] socioeconomic circumstances... of the people..." (http://www.euro.who.int/_data/assets/pdf_file/0004/109759/EHFA5-E.pdf). The work of mitigating disparities, described here, is in the infancy stage of development. External stimuli to incentivize participation by the JTGA in the *end+ disparities ECHO Collaborative*, which has an ancillary aim to "...create a national community of learners ..." appears necessary (<https://targethiv.org/cqii/end-disparities-echo-collaborative>). If the area should join national efforts to exchange knowledge and skills relevant to cross geographic research opportunities targeting health disparities, clients' stand to benefit from providers' participatory involvement.

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Science is an aid to understanding how to address health-related disparities. The work of liberating PLWHAs burdened by SDOH is necessary and imperative for achieving greater freedoms to function across a broad spectrum of life domains. A public health research agenda that focuses effort on disparities mitigation holds promise to benefit the nation. Core American values favor longer years of productive life, lower healthcare costs and more abundant quality of life. To achieve these noble aims, TIMS and other barriers to care and services must be in the cross-hairs of public health and HIV health services administrators, researchers, health planners, service providers, and client advocates. A coordinated response to the epidemic of health disparities and health inequities offer the promise of greater leverage for promoting unfettered access to HIV primary medical care and antiretrovirals, essential precursors for medication adherence, which is essential for achieving optimal health outcomes among PLWHAs (Whetten, Reif, Whetten, & Murphy-McMillan, 2008).

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