Category C:
Outcomes and Impact Evaluation

ABSTRACT 107

State of the ART: Characteristics of HIV Infected Patients Receiving Care in Mississippi (MS), USA from the Medical Monitoring Project, 2009–2010

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OBJECTIVE: Mississippi, the poorest state in the US also ranks the worst for health care overall. Less than 50 percent of people known to be HIV infected are in care. Also, African Americans, who suffer the worst health care disparities in the US, account for 78% of people with HIV in MS. The purpose of this study is to describe the patients in care and determine the factors associated with anti-retroviral treatment (ART).

METHODS: The CDC's Medical Monitoring Project collects surveillance data from 23 project areas in the US, including Mississippi, using annual probability sampling of persons in care for HIV. Data were collected from in-person interviews and HIV-related medical record abstraction. The surveillance period was the 12 months prior to the interview date. Data were collected from 212 randomly selected individuals, representing a locally representative weighted sample of 3190.4. Rao-Scott Chi-square test was used to look for relationship between variables and ART.

RESULTS: 80.98% of PLWHA in care were African American, 62.28% men and 28.35% MSM. Mean age was 43 years. Patients had a mean of 3.71 visits to the provider during the surveillance period. Mean of Geometric mean for CD4 count = 438.91 (95% CI 402.25–475.56). Overall 80.80% (95% CI 75.30%–86.29%) were on ART, and 68.12% (95% CI 62.69%–73-56%) had undetectable recent viral load status. Males (65.15%) are less likely to achieve undetectable viral load compared to females (78.30%) after controlling for individuals who are on ART (p=0.01). Viral suppression was not associated with age, race or sexual risk factors. No statistically significant difference was found in age, gender race, sexual risk factors or CD4 count groups with regard to ART prescription.

CONCLUSIONS: In MS, majority of the patients in care are on ART and most of them have suppressed viral loads highlighting the importance of linkage and retention in care. Nevertheless, males are less likely to achieve viral load suppression on ART than females.

ABSTRACT 108

Strengthening the Circle with Tribal Initiatives on HIV/AIDS

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OBJECTIVE: The TIHA project goal is to strengthen HIV/AIDS programs, and services responding to HIV/AIDS that target the American Indians/Alaska Native community at large through small grant awards. Four main objectives of TIHA were determined: 1.Enhance or support HIV/AIDS/STD education, awareness, anti-stigma and testing in the community 2.Provide funding for HIV/AIDS/STD related activities and services 3.Pass official tribal resolutions, policies or codes that support HIV/AIDS/STD Tribal programs, HIV screening or other HIV services and include LGBT and Two-Spirit communities 4.Expand the HIV/AIDS infrastructure and network for all American Indians/Alaska Natives through collaborative and transparent Tribal and Federal partnerships.

METHODS: There was a mixture of data collection processes and tools used at each of the various sites to demonstrate performance and outcomes measures across the project. This included summarizing data with percentage changes over a period of 12 months. Each site provided these monthly reports that included unduplicated testing numbers, presentations conducted, presentation attendees, HIV sites and events, how many resolutions or policies passed and how many tests were conducted at permanent sites and off sites.

RESULTS: Over a two year period, 11 Tribes and Tribal organizations were awarded funds in the amount of $13,500 and $20,000 to conduct this program at the local level. Across all sites, the programs conducted

233 presentations and directly reached a total of 8,512 participants. The sites reported that 4,515 HIV tests were performed in connection with their activities. Specific to community-based outreach, a total of 110 HIV testing events were held, with a total of 1,318 additional HIV tests provided to community members

CONCLUSIONS: In addition to HIV testing, presentations and an increase in events and establishing new policies and resolutions, the overall number of people that were either educated about HIV/AIDS or tested for HIV/AIDS by these four tribes represents over 20,954 people or contacts.

ABSTRACT 109

Dynamic Trends in HIV/AIDS Diagnoses and Related Biological, Sexual, and Drug Use Risk Factors Among Adolescents in Washington, DC

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OBJECTIVE: Although HIV incidence in the U.S. has been relatively stable in the past years, it has increased among adolescents, who remain at high risk for HIV. This study's objectivewas to assess the dynamic trends of HIV/AIDS diagnoses and biological, sexual, and drug use risk factors among adolescents (13–24 years) in Washington, D.C.

METHODS: Diagnoses of HIV/AIDS and other sexually transmitted diseases (STDs) were analyzed using HIV/AIDS and STD surveillance data from 2001 to 2009. To explore trends in diagnoses over time, we estimated the annual percent change (EAPC) with Poisson regression. Sexual and drug use risk factors were developed from five serial DC-based Youth Risk Behavior Surveillance (YRBS) Surveys from 1999 to 2009.

RESULTS: A total of 419 participants aged 13–24 years were diagnosed with HIV in 2009 in DC; 67% were male; 90% black, the major transmission categories were male-to-male sexual contact (51.8%), heterosexual (36.7%), and injection drug use (7%). The rate of new HIV diagnoses increased significantly (EAPC=10%) from 0.3% (95%CI: 0.2%–0.3%) in 2000 to 0.5% (95%CI: 0.4%–0.5%) in 2009. The overall rates of new diagnoses from 2000 to 2009 were contributed mainly from male (EAPC=30%), black/African American (EAPC=15%), and MSM (EAPC=32%). From 2000 to 2009, the number of primary and secondary syphilis diagnoses increased significantly among male and black youths (p-value and comparison %s), and remained stable among other subgroups. Chlamydia (5%) and Gonorrhea (2%) diagnoses are common among youths with most of them occurring among females and blacks. Serial YRBS surveys from 1999 to 2009 suggested that high school students had sex (48%–65%), multiple sexual partners (23%–40%), sex in the past 3 months (34%–48%), unprotected sex in the last act (75%–82%), and participated in drug/alcohol use before sex (12%–16%), with significantly higher rates among males than that among females (need to show comparison data). High proportions (25%–41%) of high school students were involved in the offering or selling drugs. Among middle/high school students, alcohol use was common (38%–67%); marijuana (11%–45%) and inhalants (6%–16%) were the most commonly used drugs, followed by Ecstasy (4%–9%), cocaine (2%–7%), methamphetamine (2%–6%), and heroin (2%–5%).

CONCLUSIONS: There is a continuing increase in new HIV diagnoses among DC's adolescents. Multiple sex partners, unprotected sex, substance use are common. Structural interventions that address access to health care and stigma as well as individual prevention interventions that address sexual/drug use risk behaviors are needed to reduce HIV transmission and racial disparities among adolescents.

ABSTRACT 110

Longitudinal Viral Load Predicts Mortality Among a Cohort of 3850 HIV-Infected individuals

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OBJECTIVE: Cross-sectional HIV viral load (VL) measurement provides invaluable information for care/treatment and research, but the nature of cross-sectional measures preclude the assessment of longitudinal cumulative plasma HIV burden. We examined the association of longitudinal viral load and mortality in a cohort of HIV infected individuals in Washington DC.

METHODS: HIV-infected individuals diagnosed and reported before 2007 to 2011 in Washington DC were included. Longitudinal viral load, a time-associated measure of cumulative plasma HIV, was calculated for each patient using the area under the VL curve. Cox Proportional model was constructed to analyze the independent association of longitudinal viral load for all-cause of mortality.

RESULTS: Of 3,850 patients contributing 13,079 person-years of this 4-year longitudinal cohort, the median of the longitudinal viral load was 2.59 log10 copies/mL and 275 patients (7.14%) died. When evaluated separately, the 4-year longitudinal viral load (hazard ratio [HR]=2.16 per log10 copies/mL, 95% CI, 1.92–2.43 per log10 copies/mL), the first VL in 2007 (HR=1.43; 95% CI, 1.29–1.58 per log10 copies/mL) and most recent VL (HR=1.69; 95% CI: 1.56–1.82 per log10 copies/mL) were associated with increased mortality, other statistically significant factors include age (HR=1.56; 95%CI: 1.22–2.00), Black (HR=3.74; 95%CI: 2.26–6.21; versus White), other racial/ethnic minorities(HR=2.1; 95%CI:1.01–4.37; versus White), injection drug user (HR=2.43; 95%CI:1.81–3.26; versus men who have sex with men), in-patient facilities (HR=4.17; 95%CI: 2.74–6.35; versus out-patient facilities/private physicians); not engaged in care (HR=2.89; 95%CI: 1.97–4.22), first (HR=8.11; 95%CI:6.39–10.31; <200 versus =200 cells/mm3) and most recent CD4 cell counts (HR=8.99; 95%CI:7.06–11.44 cells/mm3). When simultaneously evaluating VL measures and controlling for other covariates, both longitudinal viral load (HR=1.55, 95%CI: 1.27–1.90 per log10 copies/mL) and most recent VL (HR=1.37; 95% CI: 1.22–1.154 per log10 copies/mL), along with Blacks (HR=1.86; 95%CI: 1.11–3.12), not engaged in care (HR=1.8; 95%CI: 1.23–2.64), and recent CD4 cell counts (HR=4.47; 95%CI: 3.31–6.03; <200 versus =200 cells/mm3), were associated with increased mortality, whereas no cross-sectional first VL measure was independently associated with mortality.

CONCLUSIONS: Longitudinal VL and most recent viral load predicted mortality independently, suggesting cumulative HIV replication causes harm independent of its effect on the degree of immunodeficiency. Longitudinal VL will be a valuable indicator in assessing the disease progress, impact of care program, and dynamics of HIV transmission. Further research is needed to better understand the use of the longitudinal viral load.

ABSTRACT 111

Cost Analysis of Positive Charge, a Multi-Site Linkage to Care Program

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OBJECTIVE: Supported by AIDS United, Positive Charge (PC) is an evidence-based linkage to care initiative with sites in New York, California, Chicago, Louisiana and North Carolina. Although each of the five interventions is unique, all five sites are implementing evidence-based strategies. We conducted an economic evaluation of four PC interventions to assess the cost saving threshold and the cost effectiveness threshold of linkage to care programs.

METHODS: Using standard methods of cost and threshold analyses as recommended by the U.S. panel on cost-effectiveness in Health and Medicine (Gold, 1996), and as adapted to HIV/AIDS programs by Holtgrave (1998) and the U.S. Centers for Disease Control and Prevention , we conducted a cost and threshold analysis to locally assess the: • Cost per client and cost per contact of

delivering the program, • Economic threshold for the cost per HIV infection averted compared to current standard of care, and • Economic threshold for cost per disability-adjusted life years (QALYs) averted.

RESULTS: In Chicago, the cost-per-client was $2,726 and the cost-per-contact was $909. Only 0.83 HIV transmissions need to be averted in Chicago for the intervention to be cost-saving and only 2.92 QUALYs need to be saved for cost-effectiveness. In New York, the cost-per-client was $517 and the cost-per-contact was $85. The cost-saving threshold in New York was 1.03 HIV transmissions averted and the cost-effectiveness threshold was 3.65 QUALYs saved. In California, the cost-per-client was $3,186 and the cost per contact was $491. One HIV transmission needs to be averted for the intervention to be cost-saving and 3.57 QUALYs need to be saved for the program to be cost-effective. In Louisiana, the cost-per-client is $1,870 and the cost-per-contact is $455. The cost-saving and cost-effectiveness thresholds are 1.20 transmissions averted and 4.26 QUALYS saved, respectively.

CONCLUSIONS: The study found that PC's four unique evidence-based linkage to care programs appear to have highly achievable cost-saving and cost-effectiveness thresholds. There is a great need to scale-up successful HIV linkage to care programs and their economic benefits appear promising.

ABSTRACT 112

Newly Diagnosed Positives Identified by HIV Testing Programs in New York City

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OBJECTIVE: In the United States, an estimated 21% of persons with HIV are unaware of their status. In 2006, the New York City Department of Health and Mental Hygiene (NYC DOHMH) began expanding HIV testing in NYC. One of the goals of expanded HIV testing is to identify HIV-positive persons who are unaware of their status and link them to care. This abstract characterizes the new HIV cases diagnosed by DOHMH-funded testing programs.

METHODS: DOHMH analyzed preliminary positive cases identified by funded contracts between January 2006 and December 2010. Cases were matched against the NYC HIV registry and categorized as newly or previously diagnosed. We reviewed CD4 and viral load (VL) levels and time intervals from testing to first CD4 and viral load.

RESULTS: Total HIV testing increased from 28,000 tests in 2006 to 166,000 in 2010. Overall, 2,350 new cases were identified. New diagnoses increased significantly from 2006–2010 (p<0.001). The proportion of persons concurrently diagnosed with AIDS within 31 days of their new HIV diagnosis also significantly declined 21% (p<0.001) from 34% to 27%. During 2006 to 2010, the overall median time to linkage to care was 9 days. In this same period, the median first CD4 count and viral load post-diagnosis were 328 and 35,055 respectively.

CONCLUSIONS: Expanded HIV testing led to yearly increases in the number of newly diagnosed cases identified. Early detection of HIV infections rose, while late diagnoses fell. Most new cases are linked to medical care in under 30 days. In NYC, expanded testing activities allowed more people to be diagnosed earlier in the course of their infection and promptly linked to care.

ABSTRACT 113

Impact of Expanded HIV Testing in New York City

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OBJECTIVE: In 2006, the New York City Department of Health and Mental Hygiene (NYC DOHMH) began expanding HIV testing services in NYC to increase HIV diagnosis and linkage to care. This abstract characterizes findings from expanded HIV testing service in NYC.

METHODS: We analyzed HIV testing data reported from January 2006 to December 2010, including changes in

testing volume, seroprevalence, identification of new and previously diagnosed positives, and linkage of HIV positive persons into medical care. We matched those diagnosed as HIV positive to the NYC HIV registry to determine whether diagnoses were new. The date of the client's first post-test CD4 or viral load determined linkage to care.

RESULTS: The number of HIV tests conducted increased by more than 400% (p<0.001) from 2006 to 2010. Testing programs identified both newly and previously diagnosed positives. The proportion of positive results declined as the number of tests increased. The number of new positives identified increased yearly, with significant increases in 2007 compared with 2006 (p<0.001) and 2008 compared with 2007 (p<0.001). Of all HIV diagnoses, 47% were new. The number of clients linked to care within 90 days also increased significantly during the period (p<0.001). Overall, 81% of clients were linked within 90 days, and 90% within 365 days.

CONCLUSIONS: From 2006 to 2010, DOHMH dramatically increased the number of HIV tests performed in NYC, the number of new diagnoses, and the number of persons linked to care. The large proportion of patients linked to care demonstrates that active case finding for HIV may increase the number of patients receiving treatment.

ABSTRACT 114

Building a Culturally Tailored PrEP Demonstration Program for Young Men who Have Sex With Men of Color: Lessons Learned from the CRUSH Project in Oakland, California

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OBJECTIVE: In March 2012, the California HIV/AIDS Research Program funded three demonstration projects to study the implementation of medical prevention strategies, including PrEP, among communities in California. The CRUSH project is located in northern California and is specifically focused on young men who have sex with men of color (YMSMC). The demonstration project is located within an HIV care clinic, the East Bay AIDS Center's Downtown Youth Clinic (DYC). We plan to enroll at least 600 HIV-negative YMSMC at increased risk of HIV infection in an ongoing clinic program of sexual health services, including access to PrEP. Our experience as 'early adopter' PrEP prescribers will allow us to formulate tools and strategies for overcoming obstacles to implementation, particularly barriers to payment for medical prevention services.

METHODS: The formative research will investigate what at-risk people know and think about health, sexuality, HIV and STI testing and prevention, with a particular emphasis on PrEP through 20 in-depth interviews and 3 focus group discussions. We are documenting the implementation challenges associated with prescribing PrEP in an HIV care-focused healthcare system.

RESULTS: Our clinic has cared for uninsured HIV positive patients for years, drawing upon categorical funding for HIV care through the Ryan White Care Act and other sources. A large proportion of patients we hope to serve with PrEP are uninsured, and funding sources to provide them care within our non-profit health system are much more limited. In addition, the administrative complexity of managing eligibility assessments, enrollment, and re-enrollment in separate health coverage products in the era of health care reform, creates an additional barrier to serving this new population.

CONCLUSIONS: The young men we plan to target are exceedingly vulnerable. Nationwide, although HIV incidence was stable among most groups from 2006 to 2009, there has been a 48% rise in new infections among African American MSM between ages 13 and 29. Our experiences suggest that the same trend is occurring in the East Bay. Providing PrEP to these youth requires building culturally sensitive sexual health services as well as a clinical infrastructure that supports the delivery of PrEP. We will present findings and conclusions based on forthcoming formative data collection activities.

ABSTRACT 115

Estimating the Number of Injection Drug Users in the United States to Calculate National Rates of HIV Infection

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OBJECTIVE: In the United States (U.S.), injection drug users (IDUs) accounted for approximately 9% of all new HIV infections in 2009 and 16% of persons living with HIV infection. The disparity in disease rates among IDUs compared to their population size has been difficult to quantify, as no census estimates exist for the number of IDUs in the U.S. We conducted meta-analysis of national survey data to estimate the number of persons in the U.S. who have injected drugs to use as a denominator to calculate HIV diagnosis and prevalence rates for IDUs.

METHODS: We conducted a systematic literature search and identified 4 national probability surveys providing data on lifetime (ever) or past-year injection drug use. Data for each recall period were combined using meta-analysis. We applied the proportion of men and women reporting lifetime drug use and past-year drug use to census data to produce population size estimates. We then used the lifetime population size estimate to calculate HIV rates among IDUs using surveillance data on HIV diagnoses (for 2009) and persons living with a diagnosis of HIV (for 2008).

RESULTS: Meta-analysis estimated that lifetime IDUs comprise 2.6% (95% confidence interval (CI): 1.8%–3.3%) of the U.S. population age 13 years or older, representing 6,483,280 IDUs (range: 4,482,581–8,458,655) aged 13 years or older in 2009. The past-year IDU estimate was 0.30% (95% CI: 0.19 %–0.41%) or 759,759 IDUs (range: 481,181–1,038,338). Using the lifetime population size estimate, the HIV diagnosis rate was 77 per 100,000 IDUs and the rate of persons living with a diagnosis of HIV infection was 2,429 per 100,000 IDUs. Rates of IDUs living with a diagnosis of HIV infection among blacks and Hispanics were higher than those among whites (8 to 38 times and 6 to 22 times as high, respectively).

CONCLUSIONS: The estimate of the number of IDUs (lifetime and past year) in the US and burden of disease among IDUs can be particularly important for planning and optimizing the allocation of limited resources to programs serving disproportionately affected populations and addressing health inequities. The estimate of the number of IDUs in the U.S. and resulting rates are important additions to cost effectiveness and other data used to make critical decisions about resources for prevention of HIV and other bloodborne infections.

ABSTRACT 116

Estimating Averted HIV-Related Medical Costs on the Path to Eliminating Mother-to-Child Transmission Among HIV-Infected Pregnant Women in New York State: 1998–2010

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OBJECTIVE: By achieving a 0.7 percent rate of mother-to-child transmission (MTCT) of HIV in 2010, New York State (NYS) achieved one of the two CDC goals for eliminating MTCT. We estimate the number of MTCTs averted during the 1998–2010 period and the HIV-related medical costs for these averted cases that were saved.

METHODS: MTCT surveillance data was used to estimate averted cases, based on expected cases of MTCT assuming the 11.5% NYS transmission rate experienced in 1997. Averted HIV-related medical treatment costs for perinatally-infected children were estimated using a previously-published cost that assumes a 25-year survival horizon for this population. Medical costs

incurred to achieve these savings were limited to HIV-related testing, counseling, and pharmaceuticals for both expectant mothers and their newborns. Costs unrelated to the treatment of HIV, such as those incurred for social, psychological, or developmental conditions or caregiver expenses were not considered.

RESULTS: At least 749 cases of MTCT were averted between 1998 and 2010, an 85% reduction in the number of transmissions assuming the rate of MTCT had continued at its 1997 level. This reduction resulted in a projected savings of over $267.9 million in averted lifetime HIV-related medical treatment costs. An estimated $70.6 million in costs for services to HIV-infected mothers and their newborns to prevent MTCT were incurred for a net savings of $197.3 million or a savings of almost $4 for every $1 spent. (All in 2010 US$)

CONCLUSIONS: Aside from the human suffering from MTCT that is averted, the costs of treatment protocols and interventions to prevent MTCT are relatively inexpensive and can result in as much as four times their value in HIV treatment cost savings realized.

ABSTRACT 117

HIV/AIDS-Related Hospitalization Rates in US Short-Stay Hospitals, 1982–2010

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OBJECTIVE: (1) Estimate hospitalization rates and trends for HIV/AIDS-related conditions in US short-stay hospitals from 1982 to 2010, in light of the advances of HIV/AIDS care over this time period; and (2) Compare hospitalization rates and trends for HIV/AIDS-related conditions by gender and race.

METHODS: Data from the 1982–2010 National Hospital Discharge Survey (NHDS) were analyzed. The NHDS is a national probability sample survey conducted by the National Center for Health Statistics that reports hospitalizations according to medical conditions, demographic characteristics, and other features. Hospitalizations for HIV/AIDS-related conditions were identified using ICD-9 codes, and rates were calculated as a function of all hospitalizations for any condition by each year. Differences in HIV/AIDS-related hospitalization rates (Δ) by gender and race also were estimated. Linear regression models were constructed to test for differences in trends of HIV/AIDS-related hospitalizations by race and gender. All analyses were adjusted for the multi-stage sampling design of the surveys.

RESULTS: Among all patients, HIV/AIDS-related hospitalization rates increased rapidly from 0.02 per 1000 hospitalizations in 1982 to a peak of 6.3 per 1000 in 1995, fell sharply by 58% to 4.0 per 1000 by 1997, and then decreased steadily to 3 per 1000 by 2010. From 1982 to 1995, HIV/AIDS-related hospitalization rates among males grew much more rapidly than among females (Δ=0.05 per 1000 to Δ=8.6 per 1000; p<0.001). As HIV/AIDS-related hospitalizations reached a steady state among females and decreased by 55% among males after 1995, the gender gap narrowed to Δ=3.5 per 1000 by 2010. HIV/AIDS-related hospitalizations were similar among blacks and whites from 1982 to 1985 (p<0.26), then increased much more among blacks from 1986 to 1995 (Δ=0.06 per 1000 to Δ=17.0 per 1000; p<0.001). The difference in HIV/AIDS-related hospitalizations between blacks and whites remained steady from 1996 to 2007 (Δ=16.9 per 1000 to 17.6 per 1000; p<0.40), then decreased 51% by 2010 (Δ=8.7 per 1000).

CONCLUSIONS: HIV/AIDS-related hospitalization rates increased dramatically from 1982 to 1995, and have fallen substantially since then, likely as a result of advances in HIV/AIDS care. Although HIV/AIDS-related hospitalization rates remain higher among males, the gender gap has narrowed substantially. Blacks who are hospitalized remain much more likely to have an HIV/AIDS-related condition compared with whites, although reductions in the differences in rates are apparent.

ABSTRACT 118

Sustained Virologic Response and the Development of Hepatocellular Carcinoma (HCC) Among Persons with Chronic Hepatitis C Virus (HCV) Infection: A Meta-Analysis of Observational Studies

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OBJECTIVE: HCV is a leading cause of hepatocellular carcinoma (HCC), which occurs in approximately 15,000 persons annually in the United States. We conducted two meta-analyses of existing literature to determine the association between response to therapy and HCC development among persons infected with HCV.

METHODS: Using MEDLINE, EMBASE, CINAHL, the Cochrane Library, Sociological Abstracts, and DARE, meta-analyses were conducted to compare response to therapy (achieving sustained virologic response [SVR] or not responding to treatment) in the development of HCC among two groups of HCV-infected persons, i.e., those at all stages of fibrosis and those with advanced liver disease (i.e., Metavir F3–F4 or Ishak 4–6). Two investigators independently reviewed and abstracted full articles to determine inclusion in the meta-analyses. Studies, published in English, must have reported HCV testing and exclusion of HCC at study inception, measured SVR with undetectable HCV RNA = 12 weeks post treatment, and followed-up study subjects for a period of = 2 years. Annual incidence of HCC development was calculated from included studies. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) framework was used to determine overall quality of evidence.

RESULTS: The analysis included 30 observational studies. Pooled annual incidence of HCC development among persons at all stages compared with advanced liver disease achieving an SVR was 0.3% (95% CI: 0.2%–0.5%) vs. 1.0% (95% CI: 0.7%–1.5%) and not responding to treatment 1.7% (95% CI: 1.2%–2.4%) vs. 3.3% (95% CI: 2.6%–4.2%), respectively. Pooled adjusted effect estimates suggest that among HCV-infected persons at all stages of fibrosis and with advanced liver disease, achievement of an SVR was associated with significant reductions in the risk of HCC development of more than 75% (all HCV-infected persons HR=0.24 [95% CI: 0.18–0.31]; moderate quality evidence; advanced liver disease HR=0.23 [95% CI: 0.16–0.35]; moderate quality evidence).

CONCLUSIONS: HCV-infected persons with advanced liver disease are less likely than persons at all stages of fibrosis to achieve an SVR in response to treatment. Because the baseline risk for developing HCC among HCV-infected persons with advanced liver disease is approximately three times greater than that of those at all fibrosis stages, early treatment is critical. However, once patients at all stages of fibrosis and advanced liver disease achieve an SVR, the likelihood of developing HCC decreases by approximately 75%, highlighting the importance of testing and successful therapy. Resources should be applied to the treatment and achievement of a successful response among all persons identified with HCV infection.

ABSTRACT 119

Persons Diagnosed and Living with HIV/AIDS (PDLWH/A) who can Potentially Transmit HIV through Heterosexual Contact in Pennsylvania, 2010

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OBJECTIVE: CDC-recommended back-calculation analyses suggest that 80% of HIV-infected persons have

been diagnosed in Pennsylvania (PA). Although PA's updated disease reporting/public health surveillance regulations/laws required HIV (non-AIDS) case-surveillance/reporting in addition to AIDS since 2002, few studies have characterized the potential reservoir of PDLWH/A who can transmit HIV through heterosexual-contact [including those who may have been infected through Injection Drug Use (IDU)].

METHODS: Design, Study Population and Ethical Considerations: The selected HIV case-reporting/surveillance dynamic-cohort for these analyses included 34,772 adults/adolescents (>13-years old at the time of HIV-diagnosis, excluding those probably infected through mother-to-child-transmission) with a definitive HIV-diagnosis from January 1, 1980 who were longitudinally followed-up and presumed alive after death registry linkage as of December 31, 2010. PA Department of Health confidential routine surveillance to inform public health action authorized by PA regulations/law is exempt from IRB/ethics review. Statistical Analyses and Primary Outcome Measure: Simple chi-square analyses and geospatial representation of the population of interest were performed. Adjusted/multiple logistic regression analyses were performed to estimate likelihoods of PDLWH/A who can-potentially-transmit-HIV-through-heterosexual-contact (vs. all other probable modes of transmission) and how this varies by several demographic and other risk factors/covariates.

RESULTS: The proportion of PDLWH/A who can transmit HIV through heterosexual-contact was ~56% (females~46%; racial/ethnic minorities~79%). PDLWH/A who can-potentially-transmit-HIV-through-heterosexual-contact were more likely to be: a) those currently in the age-group 30–39 years(OR=2.12;95%CI:1.91–2.36) and successive older age-groups <60 years, compared to the 13–29 years age-group, b) racial/ethnic minorities [black(OR=3.13;95%CI:2.96–3.32), Hispanic (OR=4.55;95%CI:4.19–4.93)] compared to whites; c) females(OR=15.11;95%CI:14.00–16.32), except white females; and were less likely to be: a) residents of six HIV Service Areas, HAS compared to AACO HSA(Philadelphia and surrounding four PA counties).

CONCLUSIONS: Given the high proportion presumed to know their HIV-status, the substantial proportion of

PDLWH/A constituting the potential reservoir of those who can-transmit-HIV-through-heterosexual-contact (almost 1/2) suggests a major opportunity for tracking referrals, linkage and retention in care to ensure sustained prevention/care for the subgroups identified as more likely to be in this risk group.

ABSTRACT 120

Persons Diagnosed and Living with HIV/AIDS (PDLWH/A) who can Potentially Transmit HIV through Men having Sex with Men (MSM) in Pennsylvania, 2010

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OBJECTIVE: CDC-recommended back-calculation analyses suggest that 80% of HIV-infected persons have been diagnosed in Pennsylvania(PA). Although PA's updated disease reporting/public health surveillance regulations/laws required HIV(non-AIDS) case-surveillance/reporting in addition to AIDS since 2002, few studies have characterized: a) the potential reservoir of PDLWH/A who can-transmit-HIV-through-MSM, including MSM who are also Injection drug Users (MSM-IDU), and b) the opportunity for prevention/care in this population.

METHODS: Design, Study Population and Ethical Considerations: The selected HIV case-reporting/surveillance dynamic-cohort for these analyses included 34,772 adults/adolescents (>13-years old at the time of HIV-diagnosis, excluding those probably infected through mother-to-child-transmission) with a definitive HIV-diagnosis from January 1, 1980 who were longitudinally followed-up and presumed alive after death registry linkage as of December 31, 2010. PA Department of

Health confidential routine surveillance to inform public health action authorized by PA regulations/law is exempt from IRB/ethics review. Statistical Analyses and Primary Outcome Measure: Simple chi-square analyses and geospatial representation of the population of interest were performed. Adjusted/multiple logistic regression analyses were performed to estimate likelihoods of PDLWH/A who can-potentially-transmit-HIV-through-MSM (vs. all other probable modes of transmission) and how this varies by several demographic and other risk factors/covariates.

RESULTS: The proportion of PDLWH/A who can-potentially-transmit-HIV-through-MSM was ~37% (racial/ethnic minorities~49%). PDLWH/A who can-potentially-transmit-HIV-through-MSM were more likely to be: residents of the Southwest HIV Service-Area, HSA(OR=1.79;95%CI:1.65–1.93) compared to AACO HSA (Philadelphia and surrounding four PA counties): and were less likely to be: a) those currently in the age-group 50–59 years (OR=O.38;95%CI:0.35–0.41) and retrospective age groups, compared to the 13–29 years age-group, b) racial/ethnic minorities [blacks (OR=0.28; 95%CI:0.20–0.23), Hispanics (OR=0.22;95%CI:0.20–0.23)] and other (OR=0.37;95%CI: 0.30–0.46) compared to whites; c) AIDSNET (Lehigh valley and surrounding areas) HSA (OR=0.53;95%CI:0.48–0.58), North-central HSA (OR=0.85;95%CI:0.73–0.998), Northeast (OR=0.61;95%CI:0.52–0.71), and South-central HAS (OR=0.84;95%CI:0.78–0.91).

CONCLUSIONS: Given the high proportion presumed to know their HIV-status, the substantial proportion of PDLWH/A constituting the potential reservoir of those who can-transmit-HIV-through-MSM (almost 2/5) suggests a major opportunity for tracking referrals, and linkage and retention in care to ensure sustained prevention/care for the subgroups identified as more likely to be in this risk group.

ABSTRACT 121

Clinical Differences Between Black and White MSM Newly Diagnosed with HIV Disease in the District of Columbia

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OBJECTIVE: Black men who have sex with men (MSM) continue to be disproportionally impacted by HIV among MSM in the District of Columbia (DC).Several studies have explored HIV-related behavioral differences among Black and White MSM, yet there is little research that examines other disparities between these groups. This analysis investigates clinical differences between Black and White MSM newly diagnosed with HIV/AIDS in DC.

METHODS: Surveillance data from the enhanced HIV/AIDS Reporting System (eHARS) were analyzed from 2005 to 2009. Age at diagnosis, late testing, linkage to care, retention in care, and initial median viral load (VL) and CD4 counts after diagnosis were evaluated. Late testing was defined as an AIDS diagnosis less than a year after HIV diagnosis. Retention in care was defined as having at least two laboratory tests 3 months apart within 12 months of initial linkage laboratory test date. Multivariate logistic regression was performed.

RESULTS: From 2005–2009, 1,660 Black and White MSM were newly diagnosed with HIV/AIDS. Compared to White MSM, Black MSM were more likely to be late testers (OR: 2.49, CI: 1.91–3.25) and less likely to be linked to care (OR: 0.50 CI: 0.33–0.74).Black MSM were no different than White MSM in age at diagnosis and retention in care. Lab results revealed initial median VL and CD4 counts were 19,710 c/ml and 176 respectively for Black MSM and 17,568 c/ml and 315 respectively for White MSM.

CONCLUSIONS: This analysis reveals clinical disparities among Black and White MSM. Black MSM are diagnosed at later stages of disease with higher VL and lower CD4 counts and are also less likely to be linked to care. Though there have been efforts in expanding HIV testing and linkages to care, specific programs are needed for Black

MSM. Further research is needed to understand barriers of HIV testing and care services among Black MSM.

ABSTRACT 122

Using Cross-Matched HIV and Sexually Transmitted Disease Registry Data to Estimate Adherence to Dual Screening Recommendations in New York City

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OBJECTIVE: Persons diagnosed with HIV and sexually transmitted diseases (STD) in temporal proximity have particular importance to public health because of the likelihood that they contribute disproportionately to overall transmission of STD and HIV.

METHODS: The New York City (NYC) HIV Surveillance Registry includes all reported HIV diagnoses in NYC since 2000 and the NYC STD Surveillance Registry includes all reports of syphilis, gonorrhea, and chlamydia in NYC. Cases reported to these registries with diagnosis dates from 2000–2009 were matched using a deterministic algorithm followed by manual review of marginal matches. For 2005–2009, descriptive analyses examined persons diagnosed with HIV and STD during the same calendar year (HIV/STD coinfection). If a person had multiple STD diagnoses in one calendar year, the first diagnosis in that year was analyzed. To examine trends in the proportion of HIV/STD coinfections likely made in the same clinical encounter ("joint diagnoses"), we analyzed diagnoses made in the same calendar month.

RESULTS: Among 4,301 persons newly diagnosed with HIV in 2005, 7% also had an STD diagnosis in 2005. This percentage increased to 13% (480/3724) in 2009. The proportion of joint diagnoses among all coinfection diagnoses increased from 39% in 2005 to 53% in 2009 (chi square for trend, $p<0.05$). Most HIV/STD coinfections were reported among men who have sex with men (MSM)

and persons aged 20–29 years (70% and 49% in 2009, respectively).

CONCLUSIONS: Much of the increase in the number of same-year HIV/STD coinfection diagnoses can be accounted for by joint diagnoses, suggesting greater dual HIV/STD screening in NYC from 2005–2009. This may reflect more complete adherence to screening recommendations. The concentration of HIV/STD coinfections among young MSM is consistent with recent epidemiologic trends in NYC in which HIV and syphilis diagnosis rates have increased in this population subgroup.

ABSTRACT 123

A Cost-Effectiveness Analysis of the Washington, D.C. Department of Health's HIV/AIDS Linkage to Care Programs

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OBJECTIVE: The District of Columbia Department of Health (DC DOH) has actively scaled-up routine testing and linkage to care programs since 2006. Although these efforts have proven successful in identifying HIV-infected persons and linking them to care, a systematic analysis of the cost-effectiveness of these programs has not been conducted to date. This study's objective was to evaluate the cost-effectiveness of 1) routine and targeted HIV testing and 2) linkage to care programs administered by the DC DOH. Additionally, we estimated the number of HIV transmissions averted due to both low-risk, routine testing in medical settings and high-risk, targeted testing in non-clinical settings.

METHODS: Cost and utilization data were collected through interviews with DC DOH staff, surveillance reports, and document review. For routine and targeted testing, analyses compared low-risk, routine testing in medical settings with high-risk, targeted testing in non-

clinical settings. For the evaluation of linkage to care programs, analyses compared the effectiveness of three DC DOH funded programs funded: 1) a navigator program targeting the Latino population; 2) a program specifically serving District residents living in Wards 7 and 8; and 3) a program focusing on high-risk adolescents and persons engaging in sex work. Estimates for HIV transmissions averted due to both routine and targeted testing were calculated using reported national transmission rates for HIV-infected individuals both aware and unaware of their seropositivity. The study period was April 2010–March 2011 for the testing analysis and October 2011–March 2011 for the linkage to care analysis.

RESULTS: Results of the cost-effectiveness analysis comparing routine and targeted testing are forthcoming. However, when estimating transmissions averted, low-risk, routine testing in medical settings was estimated to avert 24 transmissions compared to 16 transmissions for high-risk, targeted testing in non-clinical settings. With regard to the linkage to care programs, the Latino-focused program was more cost-effective for referrals to care ($803 per referral compared to $1,378 for the Ward-focused program and $10,417 for the adolescent/sex worker program), while the Ward-focused program was more cost-effective for linkages to care ($1,879 per linkage to care compared to $4,000 for Latino-focused and $12,500 for adolescent/sex worker program).

CONCLUSIONS: Although preliminary, our findings suggest that in urban settings, low-risk, routine testing in medical sites may avert more HIV transmissions compared to high-risk, targeted testing in non-clinical sites. Further analyses, including calculating incremental cost-effectiveness ratios and additional factors related to infections averted, will assist in determining whether these findings persist.

ABSTRACT 124

Linkage, Engagement and Viral Suppression Rates Among HIV-Infected Persons Receiving Care at Medical Case Management Programs in Washington, DC

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OBJECTIVE: The District of Columbia Department of Health (DCDOH) currently funds facilities to provide medical case management (MCM). This funding is used to immediately link and engage persons in care and improve treatment adherence. The objective of this study was to determine whether differences in clinical outcomes exist among HIV-infected persons diagnosed and receiving care at MCM-funded facilities vs. non-MCM-funded facilities.

METHODS: Newly diagnosed and prevalent HIV-infected persons were identified from the DCDOH surveillance system. Clinical outcomes of interest were linkage to care within 3 and 6 months of diagnosis; engagement in care (2 visits 3 months apart within 12 months); and viral suppression (a viral load < 200 copies/mL). Bivariate analyses were performed to identify differences in demographics and clinical outcomes of persons newly diagnosed between 2009 and 2010 at MCM-funded facilities compared to non-MCM-funded facilities. Bivariate analyses were also performed to examine differences in clinical outcomes among all HIV-infected persons receiving care at 13 MCM-funded facilities compared to those receiving care at 63 other providers/facilities in 2010.

RESULTS: 1,549 HIV-infected persons were diagnosed between 2009 and 2010 and 603 (38.9%), were diagnosed in MCM-funded facilities. In comparison with non-MCM-funded facilities, a significantly greater proportion were black (80.1% vs. 75.8%, p<0.0001), MSM (45.4% vs. 29.8%, p<0.001) or heterosexual (41.0% vs. 25.4%, p<0.0001). Persons diagnosed in MCM-funded facilities were also younger, with mean age at diagnosis 36.9 years vs. 40.1 years

at non-MCM-funded facilities (p<0.0001). Although the proportion of persons diagnosed in MCM-funded facilities linked to care within 3 months was less (71.5% vs. 77.4% in non-MCM, p=0.01), similar proportions were linked to care within 6 months in both settings (80.3% vs. 82.5%, p=0.28). Persons diagnosed in MCM-funded facilities were more likely to be in engaged in care (39.8% vs. 31.4% in non-MCM, p<0.01) and achieve viral suppression (56.2% vs. 49.1% in non-MCM, p=0.01). 7,611 HIV-infected persons were receiving care in DC during 2010 and 4,034 (53.0%) were at MCM-funded facilities. These individuals were more likely to be engaged in care (51.5% vs. 36.3% in non-MCM, p<0.01). Similar proportions of these persons were virally suppressed in 2010 (69.4% vs. 69.8% in non-MCM, p=0.09).

CONCLUSIONS: This study provides evidence that medical case management services are beneficial to HIV-infected persons in DC, resulting in improved engagement in care and clinical outcomes. Further exploration is needed to determine how these services could be scaled-up to include more facilities across DC.