1352. Improved HIV markers and decreased emergencyroom usage and hospital admission with initiation of a pilot specialty pharmacy at a southeastern Ryan – White –funded clinic over a three year period

Minh Ly Nguyen, MD, MPH, FACP[1]; Alton Condra, RPh[2]; Della Corbin-Johnson, RPh[2]; Kay Woodson, RPh[2]; Manish Patel, PharmD[3]; Jonathan Colasanti, MD, MSPH[4] and Wendy Armstrong, MD, FIDSA[4]; [1]Medicine, Emory University School of Medicine, Atlanta, Georgia, [2]Pharmacy and Drug Information, Grady Health System, Atlanta, Georgia, [3]Pharmacy, Grady Health System, Atlanta, Georgia, [4]Medicine (Infectious Diseases), Emory University, Atlanta, Georgia

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Background. Specialty pharmacy (SP) provides timely medication delivery to patients and seeks to improve patient adherence through monthly pharmacist medication therapy management (MTM). Patients living with HIV/AIDS have both high cost medications and complex disease states and thus will benefit from SP. We report on the outcome of HIV therapy after 3 years of a pilot SP ina southern inner city RW funded clinic.

Methods. This is a single center retrospective chart review of patients at our clinic who were enrolled in the SP from 6/3/13–5/1/16 for at least 6 months. Baseline demographic characteristics and HIV markers (CD4, viral load) were collected. Outcomes of interest were: change in CD4 count, percent with viral suppression (VS), emergency room (ER) and hospital admission usage, as well as percent of scheduled providers' appointment kept. Each individual had the same follow up time before and after SP initiation. Bivariate analysis compared outcomes preSP and during SP using Chi-square or Fisher exact tests for categorical and Wilcoxon rank-sum test for continuous variables.

Results. During the 3-year period, there were 212 individuals referred to SP, of which 170 participated in the program. There were 92(54%) men, 136(80%) black. The median age was 48.3 years (IQR: 28.5–56.3). The average duration of follow up pre and during SP was 22.1(IQR: 16.5–27) months. In terms of insurance, 69(40%) had Medicare, 22(13%) had Medicaid, 22(13%) had private insurance, 54(32%) received AIDS drug Assistance Program (ADAP), and 3(2%) had Ryan White. Patients resided an average distance from the clinic of 17.4(IQR: 8.8–25) miles. The respective outcomes before and during SP were: CD4: 350(IQR: 181–551) vs. 413(IQR: 263–611 cells/mL ($P < 0.0001$), VS in 78 ± 30% vs. 91 ± 20% ($P < 0.0001$). The proportion of patients with emergency room usage or hospital admissions was 68(40%) vs. 49(29%) ($P = 0.036$). There was no difference in the rate of kept providers' appointment (66.6 %(IQR: 53.8–78.6%) vs. 63.8 %(50-77%) ($P = 0.19$). There was no reported death during the follow –up period.

Conclusion. This pilot SP program at the RW clinic showed statistically significant improvement of CD4 count and VS, as well as 40 % decrease in odds of using ER or hospital admission. Further studies are needed to determine whether SP is beneficial to people living with HIV/AIDS in other settings.

Disclosures. **M. Patel**, ViiV: Scientific Advisor, Consulting fee

1353. HIV Risk Assessment using Longitudinal Electronic Health Records

Daniel Feller, BA[1]; Jason Zucker, MD[2]; Michael Yin, MD[3]; Peter Gordon, MD[1] and Noemie Elhadad, PhD[1]; [1]Columbia University, New York, New York, [2]Division of Infectious Diseases Columbia University Medical Center, New York, NY, [3]Columbia University Medical Center, New York, New York

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Background. Universal HIV screening programs are costly, labor-intensive, and in practice unable to identify all individuals at risk of HIV infection. Automated risk assessment methods that leverage longitudinal electronic health records (EHRs) could catalyze targeted screening programs in Emergency Departments and across public health jurisdictions. While information on social and behavioral determinants of health are typically collected in unstructured fields, previous analyses have only considered structured EHR data. We sought to characterize whether clinical notes can improve predictive models of HIV diagnosis.

Methods. 181 individuals who received care at an academic medical center in New York City prior to a confirmatory HIV diagnosis were included in the study cohort. 543 HIV- controls with similar utilization patterns were selected using propensity score matching. Demographics, laboratory tests, and diagnosis codes were extracted from longitudinal records. Clinical notes were preprocessed using both topic modeling and an n-grams approach. We fit 3 predictive models using Random Forests including a baseline model which included only structured EHR data, the baseline model plus topic modeling, and baseline model plus clinical keywords.

Results. Predictive models demonstrated a range of performance with F-measures of 0.59 for the baseline model, 0.63 for the baseline plus topic modeling and 0.74 for the baseline plus clinical keyword model. The baseline plus topic model displayed low precision but high recall while the baseline plus clinical keyword model displayed high precision but low recall. Clinical keywords including 'msm', 'unprotected', 'hiv', and 'methamphetamine' were indicative of elevated risk.

Conclusion. Clinical notes improved the performance of predictive models for automated HIV risk assessment. Future studies should explore novel techniques for extracting social and behavioral determinants from unstructured text in longitudinal EHRs.

Disclosures. **All authors:** No reported disclosures.

1354. Linkage to HIV Outpatient Care Following an Inpatient Stay

Diana Nurutdinova, MD[1]; Shruti Ramachandran, MPH, MID[2]; Sukanya Kadam, B. Sc, MS[3]; Vince Mojica, BS[3]; Michael Mullen, MD[4] and Matt Baney, MS[2]; [1]Institute for Advanced Medicine, Mount Sinai St. Luke's Hospital, New York, New York, [2]Institute for Advanced Medicine, Mount Sinai Health System, New York, New York, [3]Mount Sinai Health System, New York, New York, [4]Mount Sinai School of Medicine, New York, New York

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Background. Immediate linkage to outpatient HIV follow-up care after hospitalization is a crucial opportunity to review treatment plan and coordinate necessary and additional services. The purpose of this review is to evaluate potential gaps in transition from inpatient to outpatient care services in persons with HIV. Data from multiple electronic medical records and billing systems were used to assess the rate of follow-up care at HIV outpatient facilities within the Mount Sinai Health System (MSHS), among patients hospitalized in four of the largest hospitals within MSHS.

Methods. ICD-10 codes were utilized to capture all hospitalized patients in 2016 with a primary or secondary diagnosis of HIV and their discharge date, across various electronic systems used by MSHS hospitals. Additional visit data was pulled from the EMR used by the five HIV outpatient facilities in order to determine the linkage to care rate. Linkage to HIV care was defined as the proportion of patients who attended an appointment at one of five HIV outpatient clinics within MSHS, within 90 days of discharge.

Results. A total of 3,992 inpatient discharges were associated with the diagnosis of HIV at the Mount Sinai Health System in 2016. Among these, 2,760 (69%) were male and 1,970 (49%) were African Americans while 56% were in the range of 50–69 years. The average length of stay was 6.6 days (SE±0.6). Out of these discharges, 1020 (25%) were scheduled to be seen at the system's HIV outpatient care facilities within the 90 day interval. Subsequently, 275 patients (27%) have kept their appointments.

Conclusion. The data suggests that a smaller proportion of the inpatient discharges is linked to care within the system in addition to low appointment compliance rate. Further efforts to optimize early linkage to care and retention may help to affect patient outcomes. Interventions focusing on chronic disease management may assist to further improve these rates. At the systems level, enhanced and increased discharge planning and coordination is required between inpatient units and outpatient clinics in addition to greater outreach by outpatient clinics immediately upon discharge.

Disclosures. **All authors:** No reported disclosures.

1355. Healthcare Engagement among Persons with HIV: More Than Just Viral Load and Clinic Attendance

Nwora Lance Okeke, MD, MPH[1]; Meredith Clement, MD[2]; Mehri McKellar, MD[3] and Jason Stout, MD MHS[4]; [1]Medicine -Infectious Diseases, Duke University Medical Center, Durham, NC, [2]Infectious Diseases, Duke University Medical Center, Durham, North Carolina, [3]Medicine- Infectious Diseases, Duke University Medical Center, Durham, North Carolina, [4]Division of Infectious Diseases, Duke University Medical Center, Durham, North Carolina

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Background. The traditional definition of engagement in HIV care in terms of only clinic attendance and viral suppression provides a limited understanding of how persons with HIV interact with the healthcare system.

Methods. We conducted a retrospective analysis of patients with ≥ 1 HIV clinic visit at the Duke Adult Infectious Diseases Clinic between 2008 and 2013. Healthcare utilization was characterized by four indicators: clinic attendance in each half of the calendar year (yes/no), number of emergency department (ED) visits (0, 1 or 2+), inpatient admissions per year (0, 1, 2+), and viral suppression (never, intermittent, always). Healthcare engagement patterns were modeled using latent class/latent transition analysis, with model fit assessed using the Bayesian Information Criterion.

Results. The cohort included 2686 patients (median age 42.9 years, 72% male, 56% black). A three-class model best fit the data: "Adherent" "Non-adherent" and "Sick". "Adherent" patients had high rates of clinic attendance in each half of the year (84%), rarely visited the ED (3.6% with ≥1 ED visit per year), and moderate rates of (54%) viral suppression. "Non-adherent" patients rarely attended clinic visits in both halves of the year (1.5%), used the ED more than "adherent" patients (10.3% with ≥1 ED visit per year), and had low rates of viral suppression (19%). "Sick" patients also had high rates of clinic attendance (75%), were frequent users of the ED (53% with ≥1 ED visit per year), and comparable rates of viral suppression to the "adherent" group (55%) viral suppression. Non-white race (OR 1.9) and age ≤ 40 (OR 3.76) were associated with membership in the "non-adherent" class. Movement between classes was dynamic, especially in the "sick" group (30–40% of whom moved to a different class the following year). Across all years, persons in the "non-adherent" class were more likely to completely disengage from care the following year than "adherent" persons (23.6% v. 0.2%, P <0.001).

Conclusion. A broader definition of healthcare engagement revealed distinct and dynamic patterns among persons with HIV that would have been hidden had only clinic attendance and viral suppression been considered. These patterns may be useful for designing engagement-targeted interventions.

Disclosures. **All authors:** No reported disclosures.

1356. Social Determinants of Health and Disparities in Linkage to Care Among Newly Diagnosed HIV Cases – South Carolina, 2009–2011

Harmeet Gill, MD[1]; Oluwole Babatunde, MPH[1] and Sharon Weissman, MD[2]; [1]University of South Carolina, Columbia, South Carolina, [2]Medicine, University, Columbia, South Carolina

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