excellent response to the PD-L1 checkpoint inhibitor Pembrolizumab. DISCUSSION/SIGNIFICANCE OF IMPACT: This work highlights the potential utility of CTCs in the management of bladder cancer. It may be the case that this assay in conjunction with current methods of patient selection for immunotherapy may allow for better response prediction than either method alone.

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Large patient volume is associated with adverse patient outcomes among those requiring maintenance renal replacement therapy
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OBJECTIVES/SPECIFIC AIMS: We set out to describe important associations and outcomes among those requiring maintenance renal replacement therapy with the patient volume per provider. METHODS/STUDY POPULATION: Through the combination of several large administrative datasets, including the United States Renal Data System (n = 237,485), the American Medical Association Master file (n = 6249), and Medicare data limited to 2012, we compared characteristics of patients, by quintile of patient/provider volume. x2 and logistic regression, adjusted for various patient and provider factors for categorical and continuous variables, was used for baseline comparisons, respectively. Cox regression, adjusted for patient, provider, and socioeconomic variables, was used to calculate risks for important clinical outcomes such as kidney transplant listing, transplant receipt, and all-cause mortality. RESULTS/ANTICIPATED RESULTS: There is a threshold patient volume at which important clinical outcomes, including kidney transplantation and all-cause mortality, may be influenced. Higher patient volume is associated with adverse patient outcome. Those receiving care from providers with the highest patient volumes are less likely to receive kidney transplantation, live in a more rural area, and be non-White. DISCUSSION/SIGNIFICANCE OF IMPACT: There is a need to identify novel and potentially modifiable factors associated with patient volume and adverse outcomes among those requiring maintenance renal replacement therapy. Provider level variables, such as patient volume, is one such variable. As nephrologists are often tasked with the care of variable numbers of patients on dialysis, a better understanding of this association is an unmet need.

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A collaborative neurology-emergency medicine rapid outpatient clinic for the management of TIA and minor stroke in the emergency department
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OBJECTIVES/SPECIFIC AIMS: Current practice frequently dictates hospitalization for TIA and minor stroke (TIAMS) in order to obtain comprehensive evaluation of stroke risk factors and mechanism. Inpatient hospitalization is often done to expedite workup and to coordinate care although may be associated with nosocomial risks and increased healthcare cost. However, a subset of these patients who do not have debilitating deficits may not require inpatient hospitalization. We conducted a pilot study to assess the feasibility of conducting rapid outpatient stroke evaluation in low risk patients with TIAMS without disabling deficits. METHODS/STUDY POPULATION: The rapid access clinic was initiated at a single-site urban tertiary care facility for outpatient evaluation of TIAMS within 24 hours of emergency department (ED) evaluation. Patients were selected using a decision tool identifying presumed low-risk TIAMS seen in the ED. Criteria included medical (e.g., no disabling deficit, no thrombolytic agent given, negative CT for hemorrhagic stroke) as well as social criteria (e.g., patient able to follow-up as an outpatient). We evaluated rates of noncompliance with post-ED follow-up, need for hospitalization from clinic, and 90 day stroke and health outcome data. RESULTS/ANTICIPATED RESULTS: Between December 2016 and December 2017 a total of 93 TIAMS patients seen in the ED were recommended for the rapid access clinic utilizing the decision tool. Of these patients, 94.5% (86) were evaluated within 24 hours of ED discharge. Only 2 patients (2.4%) who received outpatient evaluation required hospitalization; 61 (71.8%) patients had TIAMS on final evaluation in clinic. DISCUSSION/SIGNIFICANCE OF IMPACT: Our pilot data suggests that for a subset of patients, rapid outpatient evaluation may provide a feasible and safe strategy for TIAMS management. Future work exploring such strategies may help improve TIAMS outcomes and reduce ED crowding and unnecessary hospital admissions.

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Addressing challenges from missing data in a global quality improvement study
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OBJECTIVES/SPECIFIC AIMS: Missing data is a common problem in research studies that may lead to inconclusive or inaccurate results. It may even lead to harm secondary to wrong research conclusions. The purpose of this ancillary study is to measure the differences in missing data following implementation of a variety of mechanisms to improve data quality and documentation in a global quality improvement study. Many of the sites involved in the study were in low-income or middle-income countries with minimal research infrastructure. Missing data is defined as “values that are not available that would be meaningful for analysis if they were observed” (The prevention and treatment of missing data, New Engl J Med 367;14, nejm.org, October 4, 2012). METHODS/STUDY POPULATION: All study sites used REDCap software to enter various data points including hospital and ICU admission and discharge dates as well as whether items on a Checklist relevant to processes of care in the ICU were
Big data approaches in translational science: The influence of psychiatric and trauma history in predicting smoking during pregnancy in a cohort of female like-sex twin pairs

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OBJECTIVES/SPECIFIC AIMS: Smoking during pregnancy (SDP) is associated with negative health outcomes, both proximal (e.g., preterm labor, cardiovascular changes, low birth weight) and distal (e.g., increased child externalizing behaviors and attention deficit/hyperactivity disorder (ADHD) symptoms, increased risk of child smoking). As pregnancy provides a unique, sustained viremia, report of discrimination based on race ethnicity (29%, p = 0.03). Over 1 in 5 HIV-positive women reported discrimination in the healthcare system based on HIV status (21.3%). Report of discrimination based on alcohol use was higher among HIV-negative participants (19.2% vs. 6.5%, p = 0.01). Among women with longitudinal sustained viremia, report of discrimination based on race ethnicity (29%, p = 0.004) and sexual orientation (15.6%, p = 0.008) were higher than within the nonviremic and intermittent trajectory groups. DISCUSSION/SIGNIFICANCE OF IMPACT: Physician trust did not associate with increased longitudinal viral suppression among HIV-positive women in Washington, DC. Lack of physician trust among high-risk HIV-negative women could have implications for uptake of prevention methods. Reports of discrimination vary between HIV-positive and HIV-negative women in the Washington, DC area. The findings of healthcare system distrust among HIV-negative women have implications outside the realm of HIV, as this lack of trust may impact risk for other disease states among similar populations of women.

Characterizing physician trust and healthcare-based discrimination among long-term HIV viral trajectory groups in Washington, DC

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OBJECTIVES/SPECIFIC AIMS: Discrimination within the healthcare system and physician distrust have been associated with adverse clinical outcomes for people living with HIV; however, many studies do not link these variables to biological data. We hypothesize that perceived healthcare discrimination and physician distrust associates with higher longitudinal viremia among HIV-positive women. METHODS/STUDY POPULATION: A 2006 cross-sectional survey assessed healthcare-based discrimination and physician trust in 92 HIV-positive women and 46 high-risk HIV-negative women. RESULTS/ANTICIPATED RESULTS: Most women were African American (60%), insured at the time of visit (89%) and nonsmokers (56%). While physician trust did not differ by HIV viral trajectory group, trust was lower among HIV-negative women compared with HIV-positive women (p = 0.03). Over 1 in 5 HIV-positive women reported discrimination in the healthcare system based on HIV status (21.3%). Report of discrimination based on alcohol use was higher among HIV-negative participants (19.2% vs. 6.5%, p = 0.01). Among women with longitudinal sustained viremia, report of discrimination based on race ethnicity (29%, p = 0.004) and sexual orientation (15.6%, p = 0.008) were higher than within the nonviremic and intermittent trajectory groups. DISCUSSION/SIGNIFICANCE OF IMPACT: Physician trust did not associate with increased longitudinal viral suppression among HIV-positive women in Washington, DC. Lack of physician trust among high-risk HIV-negative women could have implications for uptake of prevention methods. Reports of discrimination vary between HIV-positive and HIV-negative women in the Washington, DC area. The findings of healthcare system distrust among HIV-negative women have implications outside the realm of HIV, as this lack of trust may impact risk for other disease states among similar populations of women.

Cognitive and behavioral side effects in patients treated with droxidopa for neurogenic orthostatic hypotension

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OBJECTIVES/SPECIFIC AIMS: To describe adverse behavioral symptoms attributed to droxidopa therapy for neurogenic orthostatic hypotension (nOH). METHODS/STUDY POPULATION: BACKGROUND: Droxidopa, a norepinephrine (NE) precursor, improves symptoms of nOH by replenishing NE levels. Central NE effects are poorly described but may offer potential benefits given the pathophysiology logic of α-synuclein-related disorders. Here we report a series of cognitive and behavioral side effects linked to droxidopa therapy. METHODS: We identified 5 patients treated at Vanderbilt University who developed behavioral symptoms including mania, irritability, and disinhibition shortly after the initiation of droxidopa for nOH. Comprehensive chart reviews were performed for all patients, including analysis of droxidopa titration schedule and dosing, medical comorbidities, clinical course,