descriptors, PHQ-9 data, ICD-9CM depression codes, and antidepressant drugs. Analytical tests included Cochran-Armitage test for trend, Cochran-Mantel-Haenszel test and logistic regression modeling for year of maximum PHQ-9 score. PHQ-9 tests were considered independent only if they were: initial events; 10+ months after the most recent test; or immediately following a prior test with a total score of less than 5(normal). The logistic regression model included any depression diagnosis (DEP), year, sex, age, maximum PHQ-9 score-5 categories from Normal to Severe Depression, any PCP measured PHQ-9, and any behavioral health measured PHQ-9. **Results:** Study population included 294 PCP (~181 annually) and 216,494 patients (~105,240 annually). The measurement of independent PHQ-9 in patients managed by primary care providers increased from 0.7% (2005) to 13.5% (2011); $Z = 153.34$, $P < 0.001$. Patients with an independent PHQ-9 test were 17.87 (95% CI: 17.43–18.31) times more likely to have a diagnosis of depression. After adjustment in the logistic model, patients with DEP were more likely to be prescribed an antidepressant drug, rate ratio = 3.56 (3.33–3.80). As PHQ-9 scores increased, associated rate ratios (compared to normal PHQ-9) increased incrementally, 1.26 (1.82–1.35), 2.07 (1.90–2.25), 3.05 (2.79–3.34), and 4.18 (3.72–4.70), for PHQ-9 scores 5–9, 10–14, 15–19 and 20+, respectively. **Conclusions:** Our study found PHQ-9 use in primary care clinical practice increased significantly over 7 years. Patients having PHQ-9 testing in primary care were more likely to have a diagnosis of depression. Patients with increased severity of PHQ-9 scores were substantially more likely to be prescribed an antidepressant drug. PHQ-9 data appear to increase the diagnosis of clinical depression and prescribing of antidepressant drugs in primary care.

Keywords: Patient-Reported Outcomes; Depression; Primary Care
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PS1-30:

Examining Health Service Utilization in the Year Prior to Suicide Death

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Background/Aims: Suicide is the 10th leading cause of death in the United States, warranting public health prevention efforts. Such efforts require accurate risk identification. However, the US Preventive Services Task Force has suggested that there is not enough information available to recommend screening for suicide risk in primary care. While research suggests that many individuals receive services before death, studies have been limited by small samples. This study used the largest US general population sample to date to examine the frequency, types and patterns of health services utilized prior to suicide as well as variations by subgroup. **Methods:** Health care utilization and demographic data from six health systems of the Mental Health Research Network were pre-matched with official mortality records and census files using the Virtual Data Warehouse. In total, 2237 suicide deaths were identified using ICD-10 codes, X60–X84. Reverse survival curves were calculated estimating weekly utilization for the year prior to death. These data were stratified by age, sex, insurance type, socioeconomic indicators, and cause of death. **Results:** Suicide death was more common among men (77%; $n = 1728$) and occurred more frequently by violent means (77%; $n = 1730$). Approximately 81% ($n = 1806$) received services in the year before death, with nearly 40% ($n = 900$) making a visit within a month before death. While 44% ($n = 992$) made any visit that included a mental health diagnosis in the year before death, most visits occurred in primary care without a mental health diagnosis (59%; $n = 1320$). Non-mental health primary care visits and outpatient behavioral health visits were most common in the two weeks before suicide. Service use occurred most often among women (87%; 441 of 509), older adults (65+ years; 96%; 386 of 401), and those who died by non-violent means (85%; 422 of 498). The relative frequency of mental health and general medical utilization differed markedly between age groups. **Conclusions:** Most individuals who died by suicide also used health services within a year before death. Here, over half of these individuals did not have a mental health diagnosis, and were seen for other reasons in primary care.

This study may guide targeted public health prevention efforts, including risk identification strategies.

Keywords: Suicide; Treatment Utilization

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PS1-31:

Role of Multiple Chronic Conditions in Longitudinal Cognitive Decline

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Background/Aims: Cognitive decline associated with dementia imposes substantial economic and social burden on families and healthcare systems. Cognitive decline may be influenced by chronic disorders (e.g., heart disease, hypertension), through the development of vascular dementia or Alzheimer's disease (AD). Our goal is to identify specific or clustered chronic conditions impacting transition from normal cognition to cognitively impaired non-dementia (CIND) to dementia, adjusting for demographic and behavioral factors. **Methods:** This study used data from the Aging Demographic and Memory Study (ADAMS) subsample of the Health and Retirement Survey (HRS). HRS is a nationally representative sample of US non-institutionalized adults. The ADAMS subsample ($N = 1770$; 70 years or older) was selected from the HRS 2000 or 2002 waves, based on self- or proxy-reported cognition score. Neurological assessments were performed July 2001–December 2003. Two follow-up visits in June 2006–December 2009 assessed changes in cognitive functioning. We analyzed data on 308 persons over three assessment occasions excluding persons diagnosed with dementia at baseline. **Results:** At baseline, 70% (211) of 308 sample respondents had normal cognition and 31% (97) were CIND. Among respondents with normal cognition, 33% (70) were later diagnosed with CIND and 8% (18) developed dementia, while 44% of those with CIND at baseline developed dementia. Comparing VDW data to these national data, at Scott & White only 4% of persons age 65 or over were diagnosed with dementia in 2010, suggesting a low burden from cognitive decline on this health plan where members are relatively young (US population 13% over age 65 vs. Scott & White 10%). Analysis of trends in cognitive decline by comorbidity, demographics, and lifestyle factors are in progress. **Conclusions:** At the completion of this project, we will better understand the timing and structure of interventions that could potentially delay cognitive decline and lower associated health care burden.

Keywords: Dementia; Cognitive Impairment; Alzheimer's Disease

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Pharmacoepidemiology

B3-2:

Validation of Administrative and Claims Data for the Identification of Anaphylaxis Cases in the Mini-Sentinel Distributed Database

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Background/Aims: Few published studies have evaluated the validity of health plan administrative and claims data to identify anaphylaxis. Given the severity of the condition, drug-induced anaphylaxis is a major public health concern. We developed and evaluated the positive predictive value (PPV) of algorithms for identifying anaphylaxis in the Mini-Sentinel Distributed Database. **Methods:** We conducted a retrospective study among members enrolled in 8 geographically diverse health plans (HealthCore, Inc.; Humana; three member health plans within the Kaiser Permanente Center for Effectiveness and Safety Research; and two member health plans in the HMO Research Network). Diagnosis and procedure codes were used to identify potential cases of anaphylaxis recorded in the Mini-Sentinel Distributed Database between January 1, 2009 and December 31, 2010. A random sample of medical charts ($n = 131$) was abstracted and adjudicated

and positive predictive values (PPVs) were calculated based upon diagnostic criteria by Sampson et al. **Results:** Of the 131 potential available cases, adjudicators determined that 77 were anaphylaxis, 45 were not anaphylaxis, and 9 were determined to have inadequate information to confirm whether or not a case was anaphylaxis. Overall, the PPV was 63.1% (95% confidence interval, 53.9%-71.7%). PPVs ranged from 48.1% to 78.9% across the Data Partners. In comparing different criteria, algorithms which included codes for allergy (ICD-9-CM 995.3) or adverse effects of drug, medicinal and biological substance (ICD-9-CM 995.2, E930-E949) in combination with additional treatment or symptom codes, such as injection of epinephrine, had a lower PPV (PPV = 45.8%) than algorithms that included codes specifically indicating anaphylaxis (ICD-9-CM 995.0, 999.4), although confidence intervals were wide and overlapped. **Conclusions:** While the PPV of the developed algorithm was higher than those reported in previously published studies, the PPV of anaphylaxis remains low. Further evaluation of individual codes and combinations of codes is ongoing as part of the present study.

Keywords: Anaphylaxis; Mini-Sentinel; Adverse Drug Event

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B3-4:

Identification of Adverse Drug Events Post-Hospital Discharge in a Geriatric Population

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Background/Aims: Adverse drug events (ADEs), especially those that may be preventable, are among the most serious concerns regarding medication use in older persons. The purpose of this study was to describe the incidence, severity and preventability of ADEs occurring within 45 days post-hospitalization in an ambulatory geriatric population. **Methods:** We studied 1000 consecutive discharges of patients aged 65 and older who received medical care from a large multispecialty medical group in Central Massachusetts. Discharges were excluded if the discharge diagnosis was psychiatric or if discharges were not to home. Three clinical pharmacist investigators reviewed the ambulatory records of each discharged patient to identify drug-related incidents occurring during the 45-day period post hospital discharge. Drug-related incidents were presented to a pair of physician-reviewers who independently classified incidents as to whether an adverse drug event was present, the severity of the event, and whether the event was preventable. When the physician-reviewers disagreed on the classification of an incident, they met and reached consensus; consensus was reached in all instances where there was initial disagreement. **Results:** There were 242 ADEs identified, of which 35% (n = 84) were considered preventable. Of the preventable ADEs, 63% (n = 53) were categorized as significant, 32% (n = 27) were serious, and 5% (n = 4) were life-threatening. Nearly half of all ADEs occurred within the first two weeks following discharge. **Conclusions:** Adverse drug events are common and often preventable among older persons in the ambulatory setting. The substantial portion of serious events that were considered preventable suggests opportunities for improving care during the post-hospital discharge period.

Keywords: Adverse Drug Event; Geriatrics

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PS3-6:

Blood Safety Continuous Active-Surveillance Network Feasibility Evaluation (Blood-SCAN)

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Background/Aims: In 2011, the US Food and Drug Administration (FDA) created the Blood Safety Continuous Active-Surveillance Network (Blood-

SCAN), the first nationwide active surveillance system for monitoring the safety of FDA-regulated blood components and blood-derived products. Blood-SCAN employs the Mini-Sentinel Distributed Database (MSDD) which contains 126 million individuals within 17 Data Partners. Blood-SCAN is intended to augment the existing safety surveillance system and improve US biovigilance efforts. As a first step in creating Blood-SCAN, we assessed the feasibility of using the current MSDD to evaluate blood component and blood-derived product exposures and related health outcomes.

Methods: The assessment consisted of 4 activities: (1) an expert working group identified 20 blood components and blood-derived products and 10 health outcomes of interest (HOIs) to evaluate the data available in the MSDD, (2) a literature scan was conducted to identify electronic algorithms to capture these product exposures and HOIs, (3) HOI and exposure frequencies were tabulated using established Mini-Sentinel programs, and (4) structured discussions were conducted with all Mini-Sentinel Data Partners to assess the availability, content, and quality of data within their databases. **Results:** Claims codes were available for all of the blood components and blood-derived products, and many of the claims codes for blood-derived products were sufficiently specific to allow analyses by product manufacturer, fulfilling an important regulatory need. Adequate counts of exposures to immunoglobulin products indicate the potential for future surveillance studies on these products. MSDD analyses suggest that blood-derived products are captured effectively in outpatient settings but not in inpatient settings, limiting the scope of therapeutic indications that can be assessed. Blood component exposures are also captured in outpatient settings within the MSDD; however, because most transfusions occur in inpatient settings, these data may not be completely representative of the patient population, reason for transfusion, and dose. Most Data Partners reported no current ability to access inpatient blood component exposures through existing claims data streams. **Conclusions:** The current MSDD supports safety surveillance for a variety of blood components and blood-derived products in the outpatient setting. Expanding the MSDD to include inpatient data streams will ensure that Blood-SCAN achieves its full potential.

Keywords: Blood; Active-Surveillance; Mini-Sentinel

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PS3-7:

Improving the Detection of Drug-Induced Liver Injury with an Electronic Causality Assessment Tool

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Background/Aims: The Roussel Uclaf Causality Assessment Method (RUCAM) is the most commonly used algorithm to evaluate drug-induced liver injury (DILI). It uses 7 criteria to assess causality and provides a total score ranging from -9 to 15, which is stratified into 5 categories describing the likelihood of DILI ranging from 'Highly Probable' to 'Excluded'. An electronic RUCAM (eRUCAM) was previously developed at Kaiser Permanente Southern California (KPSC) with the Observational Medical Outcomes Partnership and GlaxoSmithKline to detect DILI in an electronic medical record. The study aim was to identify areas of improvement for future iterations of the eRUCAM based on results from chart review. **Methods:** The eRUCAM was used to score potential cases of DILI identified in patients taking at least one of 14 drugs commonly associated with DILI. Patients were required to be at least 18 years of age and have 12 months of continuous membership plus drug benefit prior to drug initiation. A random sample of 20 patients without pre-existing liver disease was selected for chart review to perform quality assurance on the programming specifications and identify areas for improvement in the algorithm. A hepatologist manually scored each patient using the paper-based RUCAM. Scores from the hepatologist were compared to those from the eRUCAM using the Wilcoxon signed rank test. Qualitative findings from chart review regarding future improvements to the algorithm were summarized. **Results:** The total score from eRUCAM was identical to those of the hepatologist for 6 cases (30%). The absolute difference between the hepatologist and eRUCAM scores was greatest for Criteria 5, which assesses non-drug causes of liver injury (P = 0.001). Differences in scores were not statistically significant for other remaining criteria. Issues that were identified with Criteria 5 included: