

functional-connectivity between these areas by presenting words classified along the attributes of frequency, concreteness, and regularity, which utilize specific cognitive routes, and a visual control. Connectivity is analyzed during word reading overall vs. a control condition to determine overall reading-related connectivity, and while reading words that have high vs. low attribute values, to determine if cognitive processing routes bias the neural reading network connectivity. RESULTS/ANTICIPATED RESULTS: The localizer analysis is expected to result in the activation of canonical reading areas. The degree of functional connectivity observed between these regions is expected to depend on the degree to which each cognitive route is utilized to read a given word. After orthographic, phonologic, and semantic areas have been identified, the connectivity analysis should show that there is high correlation between all three types of areas during reading compared to the control condition. Then the frequency, regularity, and concreteness of the words being read should alter the reliance on the pathways between these area types. This would support the hypothesized pattern of connectivity as predicted by the cognitive reading routes. Otherwise, it will show how the neural reading network differs from the cognitive model. DISCUSSION/SIGNIFICANCE OF IMPACT: The results will determine the relationship between the cognitive reading model and the neural reading network. Cognitive models show what processes occur in the brain, but neural networks show how these processes occur. By relating these components, we obtain a more complete view of reading in the brain, which can inform future alexia treatments.

4341

Neuroclinical fingerprints of risk for psychosis: Profiles of neurophysiology, symptom severity, and cognitive function

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OBJECTIVES/GOALS: The study aims to utilize event-related potentials (ERPs) coupled with observable reports of symptoms to comprehensively understand neurological and symptomatic profile of individuals at risk for developing psychosis. The study is a short-term longitudinal design which allows for examination of course as well as structure of illness. METHODS/STUDY POPULATION: This study uses a combination of well-validated ERPs (P300, N400, ERN) and symptom data to predict variation in symptoms over time. We parse heterogeneity within a high-risk group to create innovative profiles and predict variation in course of symptoms. Data collection is ongoing (n = 35; target N = 100). Methods include a battery of ERP tasks tracking neural processes associated with attention, language processing, and executive function (P300, N400, ERN), along with assessment of symptom type and severity. Analyses include how ERPs correlate with severity of risk and symptom dimensions (positive, negative, disorganized). We examine whether individual versus global ERP aberrations (P300, N400, ERN) predict individual versus global symptom domain severity (positive, negative, disorganized), or vice versa. RESULTS/ANTICIPATED RESULTS: Symptom domain scores were elevated compared to general population on positive ($M = 1.65$, $SD = .36$), negative ($M = 1.9$, $SD = .42$), and depressive ($M = 1.94$, $SD = .40$) domains. Small to medium effect sizes emerged for P300 profile (r 's = $-.001$ to $-.41$) and ERN profile (r 's = $-.03$ to $-.37$), though small effect sizes for N400 profile (r 's = $-.06$ to $.29$). Analyses were run to determine the degree to which profiles of risk were similar:

P300/ERN ($r = -.09$), ERN/N400 ($r = -.39$), and N400/P300 ($r = -.20$). Additional analyses suggest potential mediating effects of cognition on neural activity and symptoms. DISCUSSION/SIGNIFICANCE OF IMPACT: We use a combination of well-validated ERPs (i.e. P300, N400, ERN) with behavioral and symptom data to predict variation in symptoms over time. A "fingerprint" physiologic aberration may be exhibited within high-risk individuals and can be used as biomarkers to identify those at risk even before onset of observable symptoms.

4532

Pancreatic Cyst Risk Stratification for Early Detection of Pancreatic Cancer Using Quantitative Radiomics and Activity-Based Biomarkers

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OBJECTIVES/GOALS: Pancreatic cysts are comprised of both precancerous mucinous lesions and non-mucinous lesions with minimal malignant potential. Our goal is to improve our ability to classify the type of cyst using a combination of novel radiomic features and cyst fluid proteolytic activity. METHODS/STUDY POPULATION: Preoperative pancreatic protocol CT images from 30 patients with proteolytic assay characterization, followed by surgical resection with a pathologically confirmed pancreatic cyst diagnosis between 2016-2019 will be used in this study. We will contour images using the widely available software 3D Slicer, and extract radiomic features using IBEX software. We will analyze area under the ROC curves to identify the radiomic features that best differentiate mucinous from non-mucinous cysts, and identify features to be cross validated. The predictive ability of identified radiomic features combined with proteolytic assay will be determined by performing multiple logistic regression analysis and comparing AUROC analysis. We will determine sensitivity and specificity for individual, as well as combinations of, analytes to determine the optimal classifier. RESULTS/ANTICIPATED RESULTS: We anticipate that the predictive ability, sensitivity, and specificity of utilizing radiomic features combined with proteolytic assay data will exceed the performance of any individual test. DISCUSSION/SIGNIFICANCE OF IMPACT: This work is designed to provide a predictive radiomic model that will enable us to better identify mucinous cysts that require further evaluation, and potentially prevent unnecessary surgery in other patients. Ultimately, we would like to improve the accuracy of noninvasive radiographic evaluation using radiomic markers. CONFLICT OF INTEREST DESCRIPTION: Dr. Charles Craik is a co-founder of Alaunus Biosciences, Inc.

4340

Piloting Implementation and Dissemination of Best Practice Guidelines Using BPM+Health

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OBJECTIVES/GOALS: Clinical translational studies inform clinical practice patterns through dissemination of clinical practice guidelines (CPG). In EM practices change to rapidly for timely local EHR implementation. We test the OMG BPM+Health specification for rapid deployment of best practices relevant to EM. METHODS/STUDY

POPULATION: The OMG Business Process Management for Healthcare (BPM+Health) specification combines BPMN™ with Case Management Model and Notation (CMMN™) and Decision Model and Notations (DMN™) to “disseminate and leverage evidence-based best-practices at the point of care.” The American College of Emergency Physicians (ACEP) Board-certified Emergency Physicians modeled practice guidelines in the BPM+ modeling language during on-line meetings. Two common emergency conditions were selected for initial pilot testing: 1) evaluation and treatment of first trimester bleeding in pregnant patients, and 2) the evaluation and treatment of non-traumatic low back pain. **RESULTS/ANTICIPATED RESULTS:** The protocols were successfully modeled during four on-line meetings in less than 2 months. Process steps from initial evaluation to disposition were implemented using BPMN™. When clinicians need to evaluate the patient to collect data for decision making the inputs and outputs were modeled in CMMN™. Decision logic is represented as DMN™. The software tool linked the components for easy browsing and authoring the logic. The Physicians easily followed the displayed logic. The practice recommendations from each policy were successfully modeled, using the standard BPM+ notation to support rapid implementation in EHRs. Detailed implementation specifications will be shared. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This pilot project demonstrated the feasibility of the OMG approach to solving Clinical Practice Guideline Implementation and Dissemination Barriers. Ongoing work by involved specialty societies will be necessary to demonstrate the scalability and sustainability of this approach.

4226

Poor provider-patient communication, lack of readiness for discharge, and perceived illness threat are associated with quality of life after survival from cardiac arrest

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OBJECTIVES/GOALS: Studies have shown that cardiac arrest survivors have poor quality of life (QoL) secondary to neurologic injury. We hypothesized that poor provider-patient communication, lack of readiness for discharge, and perceived illness threat would be associated with QoL in cardiac arrest survivors. **METHODS/STUDY POPULATION:** We distributed an online survey to the Sudden Cardiac Arrest Foundation listserv. Survivors completed the Questionnaire for the Quality of Provider-Patient Interactions (QQPPI), Readiness for Hospital Discharge Scale (RHDS), and the Brief Illness Perception Questionnaire (B-IPQ). When completing the QQPPI and RHDS, survivors were asked to think back to their hospitalization and discharge. QoL domains (physical, psychological, social) were measured via the WHO-QOL BREF. Three multiple regression models examined associations between QQPPI, RHDS, and B-IPQ scores with QoL domains, adjusted for age, sex, months since arrest, and understanding of arrest and post-arrest symptoms at discharge. **RESULTS/ANTICIPATED RESULTS:** A total of 163 survivors (mean age 50.1 years, 50.3% women) provided complete survey data. Greater perceived illness threat (β : $-.45$, $p < .001$) and lower readiness for discharge (β : $.22$, $p = .01$) were associated with worse physical QoL; greater perceived illness threat (β : $-.45$, $p < .001$) was associated with worse psychological QoL; and greater perceived illness threat (β : $-.3$, $p < .001$) and poor provider-patient communication (β : $.35$, $p < .001$) were associated with worse social QoL. Our models explained 48%, 43%, and 30% of the variance in physical, psychological, and social

QoL, respectively ($p < .001$). **DISCUSSION/SIGNIFICANCE OF IMPACT:** In-hospital interactions and perceived illness threat have important ramifications for cardiac arrest survivors attempting to return to daily life. Discussions regarding cardiac arrest sequelae, expectations, and specific treatment options during hospitalization could impact future QoL.

4012

Positive Deviants for Medication Therapy Management: A Mixed-Methods Comparative Case Study of Community Pharmacy Practices[†]

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OBJECTIVES/GOALS: To optimize medication use in older adults, Medication Therapy Management (MTM) was launched as part of Medicare Prescription Drug (Part D) policy. The objective of this study was to generate hypotheses for strategies that contribute to community pharmacies' ability to achieve high performance on policy relevant MTM quality measures. **METHODS/STUDY POPULATION:** This mixed-methods comparative case study design incorporated two conceptual models; the Positive Deviance model and Chronic Care Model. The study population consisted of pharmacy staff employed by a Midwestern division of a national supermarket-community pharmacy chain. Data consisted of semi-structured interviews and demographics. Qualitative and quantitative data were analyzed abductively or using descriptive statistics, respectively. Case comparisons were synthesized using the Framework Method. MTM quality measures used to evaluate participant pharmacies' MTM performance mirrored quality measures under Domain 4 (Drug Safety and Accuracy of Drug Pricing) of the 2017 Medicare Part D Plan[†] Star Rating measures. **RESULTS/ANTICIPATED RESULTS:** Staff at 13 of the 18 selected pharmacies (72.2%) participated in interviews. Interviewees included 11 pharmacists, 11 technicians and three student interns. Strategies hypothesized as contributing to MTM performance included: 1. Strong pharmacist-provider relationships and trust, 2. Inability to meet patients' cultural, linguistic, and socioeconomic needs (negatively contributing), 3. Technician involvement in MTM, 4. Providing comprehensive medication reviews in person vs. phone alone, 5. Placing high priority on MTM, 6. Using maximum number of clinical information systems (CISs) to identify eligible patients. 7. Technicians using CISs to collect information for pharmacists, 8. Faxing prescribers adherence medication therapy problems (MTPs) and calling on indication MTPs. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Our study resulted in eight strategies hypothesized to contribute to community pharmacy performance on MTM quality measures. To inform MTM policy recommendations, future research should engage stakeholders to assist with prioritizing hypotheses to be tested in a larger representative sample of pharmacies. **CONFLICT OF INTEREST DESCRIPTION:** This research was supported, in part, with support from the Indiana Clinical and Translational Sciences Institute funded, in part by grant number TL1TR001107 from the National Institutes of Health, National Center for Advancing Translational Sciences, Clinical and Translational Sciences Award. Dr. Adeoye-Olatunde is a part-time employee and Dr. Lake is a full-time employee at the