

Lessons learned during implementation of OMOP common data model across multiple health systems

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OBJECTIVES/GOALS: Adoption of the Observational Medical Outcomes Partnership (OMOP) common data model promises to transform large-scale observational health research. However, there are diverse challenges for operationalizing OMOP in terms of interoperability and technical skills among coordinating centers throughout the US. **METHODS/STUDY POPULATION:** A team from the Critical Path Institute (C-Path) collaborated with the informatics team members at Johns Hopkins to provide technical support to participating sites as part of the Extract, Transform, and Load (ETL) process linking existing concepts to OMOP concepts. Health systems met regularly via teleconference to review challenges and progress in ETL process. Sites were responsible for performing the local ETL process with assistance and securely provisioning de-identified data as part of the CURE ID program. **RESULTS/ANTICIPATED RESULTS:** More than twenty health systems participated in the CURE ID effort. Laboratory measures, basic demographics, disease diagnoses and problem list were more easily mapped to OMOP concepts by CURE ID partner institutions. Outcomes, social determinants of health, medical devices, and specific treatments were less easily characterized as part of the project. Concepts within the medical record presented very different technical challenges in terms of representation. There is a lack of standardization in OMOP implementation even among centers using the same electronic medical health record. Readiness to adopt OMOP varied across the institutions who participated. Health systems achieved variable level of coverage using OMOP medical concepts as part of the initiative. **DISCUSSION/SIGNIFICANCE:** Adoption of OMOP involves local stakeholder knowledge and implementation. Variable complexity of health concepts contributed to variable coverage. Documentation and support require extensive time and effort. Open-source software can be technically challenging. Interoperability of secure data systems presents unique problems.

Can we do community outreach together?: A CTSI-Cancer Center Partnership

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OBJECTIVES/GOALS: The Indiana CTSI is a partnership with Indiana University, Purdue University, University of Notre Dame, and Regenstrief Inst. IU's Comprehensive Cancer Center

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is central to cancer research and education. A partnership between these critical entities ensures certain efficiencies. We provide a potential framework for community outreach efforts. **METHODS/STUDY POPULATION:** The Indiana CTSI's partner institutions have long prioritized community outreach and engagement across the state. However, in environments with limited funding resources, efficiencies are critical to the sustainability of programs and efforts. All IN for Health, an initiative of the Indiana CTSI, has partnered with IU Simon Comprehensive Cancer Center in community outreach by evaluating current practices, aligning staffing, evaluating events, prioritizing outreach efforts, and strategic outcomes. A tool for evaluation was developed and the prioritization matrix along with a database of events now guide outreach efforts. The All IN for Health board continues to be highly engaged in providing feedback and developing strategies. **RESULTS/ANTICIPATED RESULTS:** This partnership has increased outreach to state-wide events, including urban and rural communities, as well as events contributing to the health of historically marginalized groups in the state. The challenge was our ability to be present at all community events that are critical to the success of all our partners, but most importantly the communities we serve. Opportunities to partner across non-academic and community health partners were evaluated with an assessment of All IN for Health efforts. The resulting approaches are used as an example or a potential framework from which to organize similar partnerships with the goal of advancing research and health equity. Through this partnership, we have extended outreach and added efficiencies, demonstrating creative implementation and strategies. **DISCUSSION/SIGNIFICANCE:** Unfortunately, limited funding prevents CTSAs and Cancer Centers from engaging everywhere they are needed. Translation research constantly encourages team science and collaboration. Our efforts are a reminder that the same approach applies to operations and synergizing the assets present within our community health and institutional partners.

Empowering Patients with Congenital Heart Disease: Insights into Serious Video Game Preferences

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OBJECTIVES/GOALS: Serious video games are designed for skill-building and are increasingly being used for healthcare interventions with adolescents and young adults (AYAs). The study goal was to identify AYAs' preferred game features, by demographic groups, to inform the development of a game to improve AYA's engagement in their congenital heart disease (CHD) care. **METHODS/STUDY POPULATION:** Pediatric patients, 12-18 years old, completed surveys at a routine CHD care visit. Participants rated their likelihood of using games to learn CHD management skills (5-point Likert) and preferences for ten game features commonly used, such as: personalization (make your own avatar) and levels (unlock new, advanced

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stages as you do better). Participants selected one of three response options: 1=would make me less interested in the game, 2=doesn't matter, 3=would make me more interested in the game. Descriptives and frequencies assessed interest in different game features. Chi-square tests were used to identify potential differences in game feature preferences by gender identity, age group (early/mid-adolescence vs. late adolescence), and race and ethnicity. RESULTS/ANTICIPATED RESULTS: Of 83 participants who completed surveys, the mean age was 15 years old (12-18; SD=1.73), 55% were male, 79% were Non-Hispanic White, and 70% were interested in video games for gaining CHD management skills. The top-rated game features were: levels (78%; unlock advanced stages), conflict (74%; face challenges), personalization (70%; create avatar), and story (70%; journey-based). The three lowest-ranked features were: time (29%; restricted time to complete challenge), competition (47%; score/play against others), strategy (53%; plan to reach goal). No significant differences in game feature preferences were found by demographic characteristics. DISCUSSION/SIGNIFICANCE: Most AYAs with CHD were interested in games, offering a promising avenue for future healthcare interventions. Given no significantly different preferences by demographics, the game may not require tailoring game features for certain groups. However, additional research with diverse participants is needed to fully inform game development.

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Flexible Support Materials Maintain Disc Height and Support the Formation of Hydrated Tissue Engineered Intervertebral Discs in Vivo

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OBJECTIVES/GOALS: We evaluated the long-term success of tissue engineered intervertebral discs (TE-IVDs) cultured in flexible (FPLA) or stiff (PLA) support materials, hypothesizing that FPLA would maintain disc height and tissue hydration in the minipig spine. METHODS/STUDY POPULATION: TE-IVD: NP cells were encapsulated in alginate and NP plugs were placed in the center of FPLA cages. AF cells were encapsulated in type I collagen and pipetted around NP plugs. Implantation: Empty FPLA cages (n=4), and TE-IVDs cultured in FPLA (n=4) were implanted at C3-4 or C5-6 following complete discectomy (DX) in skeletally mature minipigs (n=4). Imaging and Quantification: Terminal disc height indices (DHI) were calculated from weekly x-rays using a previously described method, and results were compared to the PLA pilot study. T2 MRI scans were taken of levels treated with TE-IVDs to quantify disc hydration as previously described. RESULTS/ANTICIPATED RESULTS: FPLA cages restored DHIs to native levels until endpoint. In contrast, PLA cages fractured, and terminal DHIs were statistically similar to DX levels. Of the four levels treated with TE-IVDs, 2 were displaced from the disc space. Stabilized levels yielded DHIs which were statistically similar to native IVD and greater than displaced and DX levels. Displaced levels yielded DHIs which were significantly lower than native and stabilized levels, but greater than DX levels (P<0.05). T2 MRIs of stabilized TEIVDs revealed that levels treated with a construct maintained tissue hydration which was significantly greater than levels treated with an empty cage or DX levels (P<0.0001), but which was about half the hydration of native disc tissue. DISCUSSION/SIGNIFICANCE: Implanting TE-IVDs with FPLA support cages leads to disc height maintenance and the stabilization of hydrated tissues in the spine,

enhancing the long term success of TE-IVD implants and providing a basis for clinical translation.

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Venous thromboembolism diagnosis definition in claims data: implications for research

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OBJECTIVES/GOALS: Venous thromboembolism (VTE) is a major cause of morbidity and mortality. Due to its relatively low incidence, prospective studies are limited. This makes administrative claims a promising data source to study VTE. We sought to examine the reproducibility of results using different VTE definitions from the published literature. METHODS/STUDY POPULATION: We conducted a retrospective analysis of a random 10% sample of the 2010-2022 IQVIA LifeLink PharMetrics Plus™ database, an administrative claims database representative of the commercially insured population of the United States. We selected cancer patients undergoing major gastrointestinal surgery, who have a higher risk for post-operative VTE (deep venous thrombosis [DVT] and/or pulmonary embolism [PE]). VTE was defined using ICD-9-CM and ICD-10-CM codes using definitions from 4 individual published studies. We compared the 4 definitions with respect to the incidence of VTE and factors associated with post-discharge VTE using standard univariate and multivariable logistic regression models. The same logistic regression models were used for each of the 4 definitions. RESULTS/ANTICIPATED RESULTS: There were substantial differences in VTE coding among the 4 definitions (range 107 to 225 ICD-9/10 codes for DVT and 12 to 24 codes for PE). The eligible population comprised 2,360 patients (49% female) with a median age of 49 years (interquartile range 47-52 years). During the index surgery hospitalization, a total of 58, 62, 63, and 83 patients developed VTE using the 4 definitions. In the 2,126 patients eligible for VTE prophylaxis, a total of 108, 68, 73, and 107 patients developed post-discharge VTE (range for DVT 35 to 81, range for PE 39 to 76). On multivariable analysis, factors independently associated with VTE included age using 1 of 4 definitions, esophageal surgery type using 3 of 4 definitions, and liver surgery type and Elixhauser score using all 4 definitions. DISCUSSION/SIGNIFICANCE: The incidence of VTE is directly affected by differences in ICD-9/10 codes used. Definitions for important clinical outcomes should be standardized when using administrative claims data in order to improve reproducibility of findings.

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A rapid-cycle application of the Consolidated Framework for Implementation Research allows timely identification of barriers and facilitators to implementing the World Health Organization's Emergency Care Toolkit in Zambia

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OBJECTIVES/GOALS: Implementation science evaluations are often too time-intensive to provide actionable feedback during