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

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