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Anatomical Approaches to Treating Obstructive Sleep Apnea in Patients who Fail CPAP: State of the Art Review

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OBJECTIVES/GOALS: The aim of this study was to evaluate current and new anatomical approaches to treating obstructive sleep apnea (OSA) in patients who fail continuous positive airway pressure (CPAP). Understanding the breadth of devices and procedures increases clinical scope of practice and innovator opportunities. METHODS/STUDY POPULATION: A comprehensive review of literature, FDA approvals, patents, and commercially available technologies was undertaken with regards to anatomical approaches for treating OSA. These include experimental therapies, surgical approaches, and non-surgical ablative procedures. Oral appliances, positive airway pressure devices, and therapeutics were excluded. Key search terms included obstructive sleep apnea,' anatomy,' surgery,' devices,' experimental therapy,' innovation,' technology,' and translational research.' Publications were limited to the last five years. Innovations were evaluated for relevance to OSA treatment and then assessed in greater depth based on scientific literature. RESULTS/ANTICIPATED RESULTS: Numbers of preclinical and commercially available innovations pertinent to the anatomical treatment of OSA were reported along with clinically relevant outcome metrics. The greatest number of innovations was found in surgical approaches, including soft-tissue removal, orthognathic surgery, and electrical stimulation. Outcome parameters included safety, efficacy, patient compliance, and mean disease alleviation as a ratio of efficacy to compliance. Innovations were grouped by their intended anatomical targets including retrolingual, palatal, oropharyngeal, epiglottic, nasal, and complete concentric collapse, making special note of gaps in the treatment armamentarium. DISCUSSION/SIGNIFICANCE: In the last decade, sleep surgery has trended toward innovative CPAP alternatives. Nerve stimulation and ablative procedures have grown, but some anatomical presentations have been frequently excluded. These developments present opportunities for innovators to fill persistent gaps in treatment.

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Awareness and Implementation of Tobacco Control Practices in Rural Louisiana Federally Qualified Health Centers

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OBJECTIVES/GOALS: Tobacco use remains a significant problem in rural America. Federally Qualified Health Centers (FQHCs) can help reduce the burden of tobacco use in rural areas. Still, we know little about center awareness and implementation of best practices for tobacco control. We assessed the knowledge and existence of tobacco control strategies in rural FQHCs. METHODS/STUDY POPULATION: We electronically surveyed health administrators and providers (n=33) in three rural Louisiana FQHCs between March and April 2021. The assessment measured awareness of the U.S. Public Health Service Clinical Practice Guideline for Treating Tobacco Use, center priority given to smoking cessation programming, the presence of best practices for tobacco control programming such as having a tobacco control champion and team, treatment and smoke-free campus policies, and referral to external cessation services. Descriptive statistics characterize survey respondents and responses. RESULTS/ANTICIPATED RESULTS: The majority of the respondents were female (88.5%), White (53.8%), between 35 and 54 years of age (69.2%), and non-smokers (65.4%). Among all respondents, 69.7% reported awareness of the U.S. Public Health Service Clinical Practice Guideline for Treating Tobacco Use. Less than half (48%) said their health center gave smoking cessation high priority relative to other health priorities. Only a third (36%) reported having a tobacco champion, and a quarter (25%) had a tobacco control team at their facility. Although all centers had a smoke-free campus policy, a quarter (27%) were unaware of the policy. Only a quarter (27%) reported having a written policy for smoking cessation treatment at their center, and a little more than half (56.7%) knew about cessation services to which they could refer tobacco users. DISCUSSION/SIGNIFICANCE: Centers had limited knowledge of the U.S. guideline for tobacco use treatment. Smoking cessation lacked priority, and tobacco control best practices implementation was low. FQHCs serving rural populations can implement guideline-recommend policies and clinical treatments, and future studies should test strategies to increase implementation.

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Beyond the Case Study: Advancing Development and Use of the Translational Science Benefits Model (TSBM) Framework through Application Across Diverse CTSA Contexts

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OBJECTIVES/GOALS: This project has two linked aims. (1) It seeks to integrate the TSBM into specific practices and processes to advance its integration into translational research and translational science processes. (2) Via this integration, it aims to determine ways to expand the TSBM as a conceptual model. Ultimately, we aim to advance the TSBM framework and use. METHODS/STUDY POPULATION: We developed a process that implemented and integrated the TSBM within three intentionally-distinct processes. First, we expanded the use of the TSBM case study from a focus on research studies to a focus on translational research programs, and specifically workforce development programs. Second, we integrated TSBM domains and indicators into a new Duke CTSA-wide database used to track, monitor, and assess activities and achievements across the CTSA. Third, we embedded TSBM and its indicators into our Pilots projects application and review process as well as ongoing reporting. RESULTS/ANTICIPATED RESULTS: We were able to successfully integrate the TSBM model into the processes indicated in methods, yet this integration identified opportunity to improve the model to enhance its applicability and value. We found the TSBM applies in distinct ways to translational science programs compared to research studies, with added indicators better accommodating TSBM application to programs. To properly integrate TSBM into progress monitoring systems, we found added needs to ensure comprehensibility for a wide array of researchers and program implementers. Across uses, we identified challenge distinguishing between TSBM benefits as demonstrated versus potential and ambiguity in potential as based on time to benefit realization, likelihood of realization, or centrality of a specific project to realization. DISCUSSION/SIGNIFICANCE: Our session contributes

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significantly to the field of translational research and science through its focus on advancement and implementation of an innovated model in its early stages, including how researchers and translation science entities can incorporate this model into their own work beyond the traditional use of case studies.

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Caregivers Perspectives on Multidisciplinary Clinic Visits for Duchenne and Becker Muscular Dystrophy

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OBJECTIVES/GOALS: This study surveyed parents and/or caregivers of children with Duchenne and Becker muscular dystrophy (DBMD) to obtain their perspectives on experiences during multidisciplinary team (MDT) clinic visits. The goal was to improve DBMD care by identifying positive and negative aspects of the visits. METHODS/STUDY POPULATION: Multidisciplinary care models have been widely used in many disciplines, as they provide excellent opportunities for patient-centered care (PCC). Survival of patients with Duchenne muscular dystrophy (DMD) has improved with multidisciplinary care. As the model continues to evolve, additional services and disciplines are added, and exploring parents' and caregivers' perspectives on multidisciplinary care for patients with DBMD must be assessed. A survey, via a non-identifiable Redcap link, was emailed to registered parents/caregivers through The Duchenne Registry provided by Parent Project Muscular Dystrophy (PPMD). The survey contained questions concerning the children's demographics, medical information, knowledge, and perspectives on MDT visits. RESULTS/ANTICIPATED RESULTS: A total of 186 parents/caregivers of DMBD patients responded to the survey. Respondents were white (83.1%), bi/multiracial (9.3%), African American (1.6%), and other (2.7%). The average travel distance to the care site was 228.37 miles. Most respondents (75%) had their visits within one day, but 25% had visits over ≥2 days. 89.0% of respondents preferred a single MDT meeting with their child's care providers; 89.4% indicated they had enough time with each provider, 86.1% were satisfied with the MDT care, and 81% said they received enough information prior to the visit. Scheduling difficulties were rare for MDT visits, but common when arranging care with providers not included in the MDTs. DISCUSSION/SIGNIFICANCE: MDT clinic visits enable patients to see multiple caregivers in a single visit. Our study suggests that parents and caregivers of DBMD patients prefer to have MDT visits and are satisfied with the care. This information will support the DBMD community as they continue to advocate for MDT visits.

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Changes in Leadership Competencies and Value Added through Participation in a Translational Science Research Leadership Academy

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OBJECTIVES/GOALS: The goal of this evaluation is to assess the value added by offering a CTSA-funded Translational Science Leadership Academy (TSLA) for faculty research leaders. We aim to disseminate lessons learned to help inform best practices for other CTSA hubs promoting team science, specifically research team leadership. METHODS/STUDY POPULATION: Atrium Health Wake Forest CTSI Team Science Program has completed 3 iterations of the TSLA, offered to all faculty leading research teams. Academies were attended by 16 (2020 cohort), 17 (2021) and 18 (2022) research faculty. For the 2022 Academy, the CTSI Evaluation Program, in collaboration with the Team Science Program, implemented a pre-post assessments for all cohort participants. These assessments tracked self-rated competencies changes, satisfaction with the program, and any recommendations for program improvement. All future cohorts will receive these assessments as well. Results will be presented from 15 semi-structured interviews with participants. We will incorporate continuous improvement cycles to gather future feedback, track recommendations and identify future directions for content. RESULTS/ANTICIPATED RESULTS: Faculty from all ranks (Assistant, Associate, Full Professor, Department Chair) participated. Leadership competencies were assessed through a pre-post comparison, each self-rated by Academy participants. The 2022 cohort showed an increase in every competency at the time of post-assessment. When asked how they would rate the overall quality of their team leadership, cohort average increased from 4.3 to 5.5 (+1.2 on a 7-point scale) from pre- to post-assessment. Additionally, 80% of post-assessment respondents plan to make (or have already made) changes in their team leadership practices. Through the qualitative evaluation, we expect to gain insight into individual experiences, changes made after participation in the Academy, and what needs still exist for research leaders. DISCUSSION/SIGNIFICANCE: Competent team leadership is key to realizing our clinical and research mission. The CTSI Translational Research Leadership Academy is an important way to bolster study team productivity, engagement and satisfaction among research teams. This project provides insight for CTSA hubs interested in promoting team science best practices.

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Comparing Real-World Impacts of Cohorts using the Translational Science Benefits Model

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OBJECTIVES/GOALS: The Translational Science Benefits Model (TSBM), developed at Washington University in St. Louis, was used to create a survey to collect group-level data on the real-world impacts of research. It was used with two cohorts of CTSA-supported pilot studies to compare the benefits of campus-community partnerships to campus-only projects. METHODS/STUDY POPULATION: Investigators from two funding streams were surveyed: a campus-based cohort (n=31), and a campus-community partnership cohort (n=6). All studies were related to COVID-19. The Translational Benefits Survey collected quantitative and qualitative data for each of the 30 TSBM benefits, in 4 benefit categories: clinical, community, economic and policy. Text provided by investigators to support each reported benefit was evaluated by two coders through a process that required coder consensus to verify a benefit as realized. Verified benefits were aggregated for each cohort, and the percentage of projects per cohort with realized clinical, community, economic and policy benefits were calculated. RESULTS/ANTICIPATED RESULTS: Campus-community partnerships did not realize any clinical benefits, whereas 26% of campus-based projects realized at least one clinical benefit. In contrast, campus-community partnerships were more likely to realize community health benefits (17% vs 10% of campus projects) and economic benefits (17% vs 13% of campus projects). We identified a substantial amount of self-