

changes in the workforce (demographics, numbers in each position and tier) since implementing the tier advancement process in 2016. To understand the efficacy of the tier assessment process, data from a subset of this population (n=84) who underwent the advancement process was examined for success rate. Individual employees and their managers were surveyed to understand their perception of the advancement process and identify areas for improvement. We also describe implementation of multiple mechanisms of community engagement to manage expectations around the tier advancement process and to provide opportunities for employees to self-manage their career planning, including portfolio planning and leadership opportunities. **RESULTS/ANTICIPATED RESULTS:** Whereas the clinical research workforce has grown by 5.5% since tiering began (2016, n=810; 2018 n=857). Nearly 13% of that growth has been in managerial or senior positions (2016, n=111; 2018 n=127). Distributions across job classifications changed only slightly, representing realignment of positions with study-level responsibilities over department-level responsibilities. Notably, clinical research nurses (CRNC & CRNC Sr.) was the only category including tiered and non-tiered positions to drop overall numbers between 2016 (n = 136) and 2018 (n=115), representing a shift in the workforce from research nurses to research coordinators. General demographics (gender, age) remained largely the same. A total of 359 positions have been hired during this time frame, nearly half of which were entry-level positions (175/359): 47 of these positions represent expansion of the workforce. Of 359 new hires since 2016, 271 currently still work in one of the research roles. Of the 84 employees who underwent the tier advancement process, 84% (43/51) succeeded in tier 2 advancement, 70% (14/20) succeeded in tier 3 advancement (CRC, CRNC, and regulatory coordinators), and 77% (10/13) of research program leaders (RPLs) succeeded in achieving tier two, which is the highest tier for this group. Fifty-five employees (65%) and 32 managers responded to a voluntary feedback survey. Overall confidence in the process improved in both groups from 2016 to 2018, most notably with managers. Both groups indicated a 10 hour reduction (employees = 35hr, 2016 and 25hr 2018; managers 25hr, 2016 and 15hr 2018) in time required to complete the tier advancement process. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The use of objectively-assessed competencies is an important step in the development of a workforce. By 1) maintaining alignment with industry standards for competencies, 2) upholding high standards, and 3) offering a consistent approach to career growth, Duke is working to develop and maintain a workforce that supports high quality research. Since the implementation of standardized job classifications and competency-based tier advancement, the positions have undergone rigorous competency-based needs evaluation. This leads to better matched jobs to study needs as well as increased standardization across the clinical research workforce. We believe that the subtle workforce shifts represent alignment of our positions with the business needs of our clinical research enterprise. Additionally, approximately 15% of our clinical research workforce has taken advantage of the opportunity to advance their own careers. We have made significant improvements in the following tier advancement processes: standardization of assessments, scoring guides, and modes; changes from LMS to a REDCap delivery of the knowledge assessments; streamlined the utilization of electronic documentation; and additional guidance for employees and managers regarding portfolio inclusions. These improvements have increased satisfaction and acceptance with the advancement process and were made possible through strategic communication across the workforce. Regular town hall meetings and focus group feedback sessions have included the clinical research community in discussions of WE-R initiatives and provided a much-needed feedback loop for

process improvement and change management. Moreover, inclusion of WE-R discussion in our Research Professional Network events has provided opportunities to discuss career advancement strategies as well as volunteer opportunities to grow and demonstrate leadership competencies.

## Health Equity & Community Engagement

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### “Sofia Learns about Research”: an interactive storybook to educate children and their families on clinical research with a welcoming and inclusive approach.

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**OBJECTIVES/SPECIFIC AIMS:** Our overall goals are: 1. To engage, inform and educate children and families on clinical research and increase their understanding of the goals and process of participation in research studies/clinical trials; 2. To Increase participation of children, especially those who are disproportionately underrepresented, in clinical research in the Western New York region and beyond. **METHODS/STUDY POPULATION:** The University at Buffalo Clinical Translational Science Institute conducted meetings in schools, community coalitions while holding focus groups with children with chronic conditions and their families and community health workers to identify the general perceptions of research. These conversations then informed the development of a children’s activity book about research. Completed in 2017, our “Sofia Learns about Research” activity book presents research in a non-threatening way by presenting a child with asthma who walks through the process of learning about research, being recruited and participating in research. The book explains basic concepts about research coupled with fun games and the possibility to color. Over 1,000 copies of the activity book have been disseminated to second to fourth graders via afterschool programs, community events, and medical practice waiting rooms. Recipients of the book are directed to short surveys to provide feedback on the book and their perception of research. The parents are also given the option to sign-up for the Buffalo Research Registry in order to be contacted about research opportunities. **RESULTS/ANTICIPATED RESULTS:** Response has been very positive, with parents and community participants saying “It’s not just a storybook. The activities keep kids entertained while learning new concepts.” In children informally polled via a brief questionnaire pre and post story reading at an afterschool program, there was an increase in those interested in participating in a research study. In a recent event sponsored by the CTSI Community Engagement Core and other UB organizations, a group of fifty children from diverse background colored with enthusiasm several activity pages and obtained stickers for their “Research Passport”. In a recent teacher focus group we learned that the book content may fit the Science Curriculum and plan on reading sessions in inner-city schools after approval from the district. A pilot reading activity in a Montessori program revealed that second grade children were able to understand and complete the activities in the book. We are obtaining further feedback form teachers and parents in order to design simple protocol to be submitted for IRB approval to obtain more formal feedback and outcomes in future readings. In parents and focus groups several respondents have indicated its relevance to older populations and

English-language learners as well. The book has recently been translated into Spanish and Arabic through a partnership with the International Institute of Buffalo, which “welcomes, connects and empowers the foreign born”. Some of the book’s images have been modified in order to be sensitive to the readers’ culture and we are in the process of collaborating with the International Institute to disseminate it to their clients. We are in the initial phase of planning a mobile application which we anticipate will significantly enhance dissemination. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This presentation will describe the development process, the underpinning concepts and our plans and current progress towards a more formal community and school dissemination and evaluation. This project was made possible by Team Science in that the expertise of a millennial pre-medical student and an anthropologist with high community involvement was coupled with that of a senior clinical translational researcher. Moreover, much research and attention was devoted to the creation of images that are culturally inclusive. To this end, with the exception of the cover page, we have intentionally created the book in black and white so that the child may use his/her imagination and color the way he/she sees the protagonists and the environment. Great attention was devoted to names of the protagonists with the names of the two main characters being among the most common in the world in numerous countries. Also, the book lends itself to a mobile application which will allow the reader to change colors and shapes of the protagonists to fit his/her cultural background. We are in the early planning stages and will share our progress as part of this presentation. We have strived to disseminate the book with a broad approach in our community. This phase is being followed by a more formal dissemination phase via libraries, schools and community events. This part of the project exemplifies the challenge between wanting to disseminate the book broadly while obtaining formal feedback and outcomes in compliance with regulations protecting the anonymity and/or confidentiality of children and families. Therefore for this second phase of dissemination IRB approval is being sought in order to collect more quantitative and qualitative data on the impact of the book. We have already conducted a focus group with teachers to overcome the challenges around informed consent, especially in the public school system. Our initial findings suggest this resource will improve knowledge and perception of research among children and their families. To our knowledge most of the materials explaining research to children are geared to older children and are often sponsored by pharmaceutical companies for a specific trial. If successful, this book can have a profound impact in reaching out to children outside of the research and medical environments, with the ultimate goal of increasing the child’s and family’s willingness to participate in clinical research and clinical trials.

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### **A Community-Academic Partnership to Understand the Association Among Health Status and Senior Services Utilization to Improve Nutrition and Blood Pressure Control for Low Income Seniors Aging in Place**

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**OBJECTIVES/SPECIFIC AIMS:** The Rockefeller University Center for Clinical and Translational Science (RU-CCTS), Clinical

Directors Network (CDN), and Carter Burden Network (CBN), a multi-site senior services organization serving East Harlem, NY, formed a community-academic research partnership to characterize the health of the CBN seniors (many who are racial/ethnic minorities, low-income, and suffering from multiple chronic conditions) and to explore the use and associations of a measure of overall health status and frailty in this population. A simple validated measure of health status could standardize and streamline community-based translational research to study the impact of CBN’s services on health outcomes. The CCTS-funded Pilot Project aims to: 1) Engage CBN seniors and stakeholders in priority-setting, joint protocol development, research conduct, analysis and dissemination; 2) Characterize the health status of the CBN seniors using validated measures; 3) Establish an electronic database infrastructure for current and future research; 4) Understand how health and senior activities information can be used to implement programs to improve senior health and well-being. **METHODS/STUDY POPULATION:** 1) We used Community Engaged Research Navigation (CEnR-Nav) methods to facilitate partnership development, and to engage CBN seniors and stakeholders in each step of the research; 2) Research staff conducted recruitment, informed consent, and physical assessments (e.g., pulse, blood pressure, BMI); and administered validated surveys to collect health status information. 3) Data were captured on a REDCap-based platform. The primary outcome, frailty, was measured by the validated Short Physical Performance Battery (SPPB). 4) Secondary outcomes include the association of use of services/activities with the primary outcome. Research participants consented to sharing of their health, demographic and services utilization data compiled by CBN staff and the NYC Department for the Aging (DFTA). DFTA provided comparison datasets of de-identified health and demographic data for clients attending other NYC DFTA-funded senior centers. **RESULTS/ANTICIPATED RESULTS:** 1) 43 residents and stakeholders engaged in partnership-building, study design and implementation. 2) 218 participants from two senior centers were enrolled. Mean age, 68 ± 11 years; 58% Hispanic; 33% African American, 23% White, 1% Asian, 18% Unknown, 17% Other; 69% reported <\$20000 annual income; 40% had not completed high school; 30% scored as moderately or severely frail; 83% were overweight or obese; and 33% reported a history of diabetes. 84% had uncontrolled high blood pressure; many participants were previously aware of their hypertension diagnosis. 3) A REDcap database was developed to store historical and prospective data. 4) Across frailty categories, there was a significant difference in utilization of non-meal ( $p = 0.0237$ ) and meal services ( $p = 0.0127$ ) and there was an inverse proportional relationship between the number of meal and non-meal visits, and frailty. Additional associations among health status measures (e.g., SPPB, demographics, biological measures: pulse, blood pressure, BMI; psychosocial and nutritional scales) and CBN service utilization (i.e., meals vs. non-meals activities) will be presented. **DISCUSSION/SIGNIFICANCE OF IMPACT:** We developed a community-academic research partnership, infrastructure and capacity, built through our Community-Engaged (CEnR-Nav) model, to conduct a pilot study characterizing the health status and services utilization of low-income minority seniors. Our pilot study identified an urgent health priority, uncontrolled hypertension in 84% of CBN’s seniors. We then leveraged the team’s expertise and CBN’s meal services program to develop a research proposal for external funding to conduct a community-based multi-component intervention study. Replacement of a typical Western diet with the Dietary Approaches to Stop Hypertension (DASH) diet has been proven to reduce blood pressure in hypertensive and normotensive individuals in as little as 14 days, yet effective implementation has