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## Disparities in care among patients presenting to the emergency department for nephrolithiasis

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**OBJECTIVES/SPECIFIC AIMS:** The prevalence of kidney stone disease has increased significantly in the United States in the last 2 decades. While several studies have reported that disparities in access to and quality of medical care exist, there is a need for a more thorough investigation of factors that negatively impact patients seeking care specifically for kidney stone disease. We sought to examine whether kidney stone patients received different standard of care in the emergency department (ED) according to their race/ethnicity, gender, age, body mass index, socioeconomic status (SES), and insurance status. **METHODS/STUDY POPULATION:** We conducted a retrospective study of patients presenting to the ED at Montefiore Medical Center between January 1, 2014 and December 31, 2016. Patients with a diagnosis of nephrolithiasis were identified using ICD-9/10 codes and electronic chart review was used to assess each patient's ED course as well as to gather sociodemographic information. The primary outcomes of interest were administration of pain medication, prescription of alpha-1 antagonists to facilitate stone passage and whether or not patients received CT scan or ultrasound. Associations of these outcomes with age categories, sex, race/ethnicity, body mass index category, SES and insurance status were examined using multivariate logistic regression models. **RESULTS/ANTICIPATED RESULTS:** A total of 1200 patients were included in this analysis of which 616 (51%) were women. A large proportion of patients were minorities (40% Hispanic and 15% non-Hispanic African-American), whereas 21% were Caucasian and 24% declined to report race/ethnicity. Patients between the ages of 55–64 and those older than 65 were less likely to receive pain medication compared to younger patients aged <35 years (OR = 0.48, 95% CI: 0.27–0.86 and OR = 0.46, 95% CI: 0.21–1.00, respectively). Women were less likely than men to undergo any form of diagnostic imaging (OR = 0.52, 95% CI: 0.35–0.76) including CT scan (OR = 0.50, 95% CI: 0.35–0.72). Similarly, patients in the lowest quintile of SES received less imaging than patients in higher SES categories (OR = 0.50; 95% CI: 0.27–0.90). Furthermore, African Americans (both genders) and women were less likely to be prescribed an alpha antagonist medication (e.g., tamsulosin) to facilitate stone passage compared with White patients (OR = 0.61, 95% CI 0.36–1.03) and men (OR = 0.68, 95% CI: 0.49–0.92), respectively. **DISCUSSION/SIGNIFICANCE OF IMPACT:** We found that multiple disparities exist among patients presenting to the ED for nephrolithiasis. A more thorough investigation into the causes of these disparities is warranted to limit their impact on patient care.

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## Efficacy of a 4-part program on brain development

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**OBJECTIVES/SPECIFIC AIMS:** (1) Provide basic brain knowledge about development and resiliency. (2) Develop an understanding of how a mother can impact a child's brain development. (3) Foster a sense of agency to increase the likelihood that a mother will enact positive changes. (4) Develop the ability to recognize a connection between one's own behaviors and a child's development and behaviors. **METHODS/STUDY POPULATION:** Tested the efficacy of a 4-week intervention program on neurodevelopment for homeless mothers. Mothers (n = 4) residing at the Center for the Homeless in South Bend, IN were recruited. Used community partner feedback, weekly surveys, and pre/post tests to look at changes in basic content knowledge, behavioral change, and self-efficacy. **RESULTS/ANTICIPATED RESULTS:** Preliminary results indicate an increase in knowledge about neurodevelopment, although results on behavioral changes are inconclusive. The program is anticipated to run a second time with a new group of parents residing in the Center for the Homeless to increase sample size. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Anticipated that the results will add to the existing literature concerning effective interventions in strengthening parenting and neuroscience knowledge in vulnerable populations.

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## Engaging, capturing, and integrating the voice of the customer and collaborator in a clinical and translational science program

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**OBJECTIVES/SPECIFIC AIMS:** This presentation will highlight the framework, domains, and approaches of the "Engaging the Voice of the CTS Customer and Collaborator System" created at the University of Minnesota Clinical and Translational Science Institute (CTSI) in response to the need to improve the stakeholder engagement, quality, efficiency, consistency, and transparency of the clinical and translational work. This system addresses 3 important results-based accountability measures/questions: "What should we do?", "How well did we do it?", and "Is anyone better off?". According to Woolf (2008), "translational research means different things to different people." Social networks and systems that support translational processes and outcomes are complex, nonlinear, and multidisciplinary (Smith et al., 2017). In this highly uncertain and fluid context, the input of program stakeholders is paramount to move translation forward. NCATS Strategic Plan (2016) directs the grantees to engage patients, community members and nonprofit organizations meaningfully in translational science and all aspects of translational research. Engagement of stakeholders throughout the lifecycle of a translational research project ensures the project processes and outcomes are relevant to and directly address their needs and will be more readily adopted by the community. "Customer" (among other terms are Beneficiary, Collaborator, Client, Community, Consumer, Service User, etc.) is a person, organization, or entity who directly benefits from service delivery or program (Friedman, 2005). Customers can be: direct and indirect, primary and secondary, internal and external. Our analysis of CTS stakeholders ("Who are our customers/collaborators?") produced the following list of customers and collaborators: researchers, University departments, translational science workforce, patients, community members and entities, nonprofit organizations, industry collaborators, NCATS/NIH, CTS hub partners, and CTSI staff. The "Voice of the Customer" (VOC) is the term used to describe the stated and unstated needs or requirements of the program's customer. The "voice of the customer" is a process used to capture the feedback from the customer (internal or external) to provide the customers with the best quality of service, support, and/or product. This process is about being proactive and constantly innovative to capture the changing needs of the customers with time. Related to the VOC is the concept of user innovation that refers to innovations developed by consumers and end users. Experience shows that sometimes the best product or a process concept idea comes from a customer (Yang, 2007: p. 20). Capturing and utilizing such ideas are also relevant to VOC and can be operationalized and implemented as a valuable strategy. The University of Minnesota CTSI's key objectives, goals, and uses of engaging the VOC and collaborator are as follows: (1) Engage CTS customers ("relevant stakeholders") in multiple aspects of translational science and look for opportunities to include their perspective (per NCATS strategic principles). (2) Inform continuous improvement, strategic management, and M&E efforts, the identification of customer needs and wants, comprehensive problem definition and ideation, new concept development and optimization. (3) Synergize NCATS and partner expectations and campus/hub needs. (4) Translate VOC into functional and measurable service requirements. **METHODS/STUDY POPULATION:** A case study of the programmatic and methodological approach/technique development. The VOC at the UMN CTSI has been captured in a variety of ways: regular and ad hoc surveys, interviews, focus groups, Engagement Studios, formal call for patient/community ideas and proposals, informal conversations, customer/community membership and participation in the Advisory Boards and Executive Leadership Team meetings, and observations. Our VOC variables and metrics assess customer needs, wants, knowledge, and skills; customer satisfaction with processes and outcomes; and customer ideas for improvement and innovation. The ensuing customer feedback and other data have been used to identify and incorporate the important attributes needed in the CTSI processes, products, and dissemination. UMN CTSI partners in engaging and capturing the VOC include our past, current, and potential customers and collaborators, communities, program staff and service providers, program administration, communication staff, M&E team, internal and external data collectors. **RESULTS/ANTICIPATED RESULTS:** The proposed comprehensive approach shows sound promise to enhance customer and collaborator engagement, critical thinking, learning, strategic management, evaluation capacity and improvement within clinical and translational science organizations. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This structured approach's impact is significant in that it fills the current gap in the practice, literature, and methodology and offers a practical example of a "practice that works" for CTR (and other) organizations and programs striving to improve their stakeholder engagement and program impact. Leveraging and synergizing the VOC and community engagement approaches can help CTS organizations advance beyond capturing individual

project/service experiences to drawing a holistic portrait of an institution-level (and, potentially, a nation-level) translational science program.

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### Enhancing outcomes for young children with behavior disorders: A model for coordinated care

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**OBJECTIVES/SPECIFIC AIMS:** (1) Identify current barriers to coordinated care between behavior consultation and PCIT services. (2) Identify current facilitators to coordinated care between behavior consultation and PCIT services. (3) Utilize this knowledge to create and pilot a coordinated care model that will enhance PCIT and behavior consultation service outcomes. **METHODS/STUDY POPULATION:** Objectives 1 and 2: Two focus groups consisting of 8–10 behavior consultants will be conducted to gather initial information on barriers and facilitators to coordinated care. Participants will be recruited from the state-funded behavior consultation team, to represent consultation occurring in rural and urban settings. All focus groups will be recorded and transcribed to capture questions and comments. Focus groups will be provided with an initial 10-minute overview of PCIT, including theory, prescribed strategies, and mode of intervention. A grand tour question will then be asked to elicit consultant perceptions of PCIT (e.g., “What are your thoughts on the compatibility between PCIT and behavior consultation services?”), followed by probe questions designed to elicit more detailed information about any perceived differences based on philosophical approach; differences in what is recommended in childcare settings Versus at home, etc.; and perceived barriers to coordinated care between school and outpatient services (e.g., “What factors make coordinating care with outpatient providers challenging?”). Participants will be asked about their willingness to participate in a second focus group to review materials created to enhance coordinated care, based on their feedback. **Objective 3.** Based on feedback from the focus groups and quantitative data regarding factors associated with PCIT outcomes, we will develop an enhanced childcare component(s) for eventual implementation. To confirm our approach, we will invite the members of both focus groups back for a second session, in which we provide them with the created materials and elicit their feedback. We will start with a grand tour question (e.g., “How do you think parents and teachers would react to these materials?”) and then follow-up with probe questions related to feasibility (e.g., “How do you anticipate using these tools?”), appropriateness (e.g., “How adequately do you feel these materials address concerns with coordinated care?”), and acceptability (e.g., “How likely are you to begin using these tools within your consultation?”). Both focus groups will be recorded and transcribed to capture questions and comments. **RESULTS/ANTICIPATED RESULTS:** (1) Barriers and facilitators to coordinated care will include individual (e.g., acceptability of PCIT framework) and system-level factors (e.g., ease of communication between providers). (2) There will be significant overlap in coordination between the first phase of PCIT (which focuses on positive parenting strategies) and what is prescribed by behavior consultants. (3) There will be less compatibility between the second phase of PCIT (which focuses on disciplinary strategies)

and what is prescribed by behavior consultants. (4) A coordinated care model will be rated as more feasible, appropriate, and acceptable to behavior consultants than PCIT services as currently prescribed. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Childhood disruptive behaviors are among the most frequent reasons for referral to outpatient child/adolescent mental health clinics (Sukhodolsky et al., 2016). Disruptive and aggressive behaviors are problematic, not only for victims of children who are aggressive but also for aggressive children as they age. Although effective treatments exist, families are often provided with conflicting strategies for behavior management by outpatient clinicians and behavior consultants in the daycare setting, thus providing children inconsistent feedback which will delay their attainment of new skills. These data will provide the initial foundation for the development of a coordinated care model that promotes treatment efficacy by improving the compatibility between clinic-based PCIT and daycare-based behavior consultation services.

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### Environmental barriers and facilitators of health care access and utilization for elderly stroke survivors

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**OBJECTIVES/SPECIFIC AIMS:** This study will use face-to-face interviewers with Medicare-eligible stroke survivors, and adult caregivers of stroke survivors, to extend the aims of a quantitative study on healthcare utilization in elderly stroke survivors. The objective of this research is to better understand, in more detail, relevant barriers and facilitators to accessing healthcare among older stroke survivors. The ultimate goal of this research is to develop strategies to improve access to healthcare, such as home modifications; changes to the neighborhood physical environment; or interventions at the provider/service level. This research will also serve as a precursor for future intervention work that will be proposed as a part of a K01 proposal. **METHODS/STUDY POPULATION:** Participants were recruited from Ann Arbor and Flint, MI using an existing academic-community partnership as well as through the University of Michigan Stroke Clinic. A total of 8–10 stroke survivors and 1–2 caregivers were recruited through the partnership and clinic records, as well as some use of snowball sampling to obtain a socially, economically, and racially representative sample. Participants must be 65+ years old, eligible for Medicare, living in the community, identify as either White or Black, and have no major cognitive/language deficits that jeopardize informed consent. Face-to-face interviews were conducted, and open-ended questions emphasized environmental barriers and facilitators to accessing healthcare, with a focus on social and physical barriers in the home and neighborhood. Interviews were audio recorded and transcribed, and field notes from 1 to 2 sources were also documented and will be used to triangulate the data and increase coding validity. Audio recordings will be reviewed multiple times and quotes relevant to the research questions and underlying theoretical framework will be transcribed verbatim. The transcripts will be analyzed using thematic coding based on literature and the study objectives and hypotheses. I will identify primary themes related to environmental barriers and facilitators to accessing healthcare among the stroke-survivors. **RESULTS/ANTICIPATED RESULTS:** Preliminary results suggest that participants are primarily concerned about the social environment. Several interviews revealed that stroke survivors felt socially isolated and were often hesitant to ask for help because they did not want to be a burden on their family and friends. Transportation to appointments was also identified as a barrier due to the fact that many people are no longer able to drive, yet are not comfortable navigating other forms of transportation. We expect to identify additional physical and social environmental challenges to both health care utilization and well-being more generally, among older stroke survivors. Anticipated themes may include: barriers in the physical environment such as transportation to care and services, social support and social environmental factors to support feeling safe leaving home to access care. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Despite the physical and economic burden of stroke, and attempts to improve outcomes for stroke survivors living in the community, stroke survivors have high rates of disability and unmet medical and psychological needs. The results from this research are anticipated to directly inform future partnerships and intervention in these, or in similar communities. Understanding how the environment influences access to healthcare for elderly stroke survivors is essential if we want to increase recommended preventative care and treatment in this vulnerable population with unique healthcare needs. The results of this study will be used to directly inform the aims and methods for other translational research projects, including a K01 proposal, in which I will develop and pilot a community-based intervention to ameliorate environmental barriers and enhance facilitators of access to healthcare for older, disabled adults.