

fitness phenotypes within these populations. This variation underscores the limitations of single-colony testing and suggests a need for population-level resistance screening. We anticipate genomic analyses will identify genetic diversity underlying these differences, supporting a more comprehensive clinical approach to treatment. **DISCUSSION/SIGNIFICANCE OF IMPACT:** This study reveals notable intrapopulation heterogeneity in *Candida glabrata*, including variations in colony morphology, antifungal resistance, and fitness. Findings highlight genomic diversity, introduce a novel screening method for resistance, and emphasize the need for population-level testing in clinical practice.

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Quality of communication with parents of critically ill infants

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OBJECTIVES/GOALS: Communication between clinicians and parents of seriously ill infants is understudied. This study aims to 1) define high-quality communication with parents of critically ill infants and 2) evaluate the psychometric properties and validity of a measure of high-quality communication in parents of critically ill infants. **METHODS/STUDY POPULATION:** 1) Using participant observation and semi-structured interviews of 35 parents of hospitalized infants, I will conduct content analysis to describe high-quality prognostic communication with parents of infants in the pediatric intensive care unit. Using descriptions captured during participant observation and in semi-structured interviews, I will produce a novel definition of high-quality communication with parents of seriously ill infants. I will also explore parent experiences of communication by race. 2) I will validate a measure of communication quality in parents of 200 neonatal and pediatric intensive care unit patients. I will use factor analysis to evaluate the extent to which responses map onto an established construct and assess dimensionality and reliability. **RESULTS/ANTICIPATED RESULTS:** 1) I anticipate finding that identification of high-quality communication will be consistent between participant observation and interviews and will track with Wreemann's framework. I hypothesize that minoritized parents are more likely to receive low-quality communication. 2) I hypothesize that the measure of communication quality will be valid and reliable in the neonatal and pediatric intensive care units. **DISCUSSION/SIGNIFICANCE OF IMPACT:** I will explore communication quality in a novel setting for which limited data are currently available, establishing a measure for future pediatric communication research and identifying targets for interventions to improve communication quality. Better understanding of communication with parents of sick infants will lead to improved outcomes.

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Social cognition is associated with social problems in adolescents with Tourette syndrome

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OBJECTIVES/GOALS: To assess theory of mind and empathy in adolescents with Tourette syndrome (TS) and examine their

association with social problems. This study aims to extend research in social cognition to an adolescent cohort with TS and identify a potential modifiable risk factor for social problems in TS that may serve as a novel intervention target. **METHODS/STUDY POPULATION:** We will enroll 50 adolescents with TS (ages 11–17) and 50 demographically matched controls along with one parent to complete a single in-person study visit. Adolescents with TS will be recruited through the Vanderbilt Center for TS and other Tic disorders. Controls will be recruited using university listservs and flyers posted in community and primary care settings. Adolescents will complete the NEPSY-II to assess theory of mind abilities and the Multifaceted Empathy Test – Juvenile to assess empathy with negative emotions. Parents will complete the Child Behavior Checklist to assess adolescent social problems. **RESULTS/ANTICIPATED RESULTS:** Based on evidence of low self-other distinction in TS, we hypothesize TS adolescents will make more errors about the mental states of others (theory of mind) and report greater emotional reactions to faces (empathy) compared to controls. Further, greater social problems will be associated with greater disturbances in social cognition. To date, 15 adolescents with TS and 15 matched controls have completed the assessment (67% male; Mage = 14.33 in both groups). Within this sample, adolescents with TS experienced more social problems than controls (Cohen's $d = .74$, $p = .03$). There were no between-group differences in theory of mind or empathy in this pilot sample. However, higher levels of both theory of mind and empathy were linked to experiencing greater social problems in the TS sample only (p 's $< .05$). **DISCUSSION/SIGNIFICANCE OF IMPACT:** Preliminary findings suggest that while social cognition did not differ between groups, TS adolescents exhibiting high levels of theory of mind and empathy appear to struggle socially. This work could inform future interventions by highlighting the need to focus on social cognition and how these skills translate into social behaviors.

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Aging and sarcopenia of the diaphragm muscle

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OBJECTIVES/GOALS: Understand the impact of sarcopenia on the main respiratory muscle, the diaphragm (DIAM). We hypothesize that in the DIAM of older (i.e., 24 months) compared to younger (i.e., 6 months) rats, maximum specific force (P_0) is reduced, maximum shortening velocity (V_{max}) is slower, maximum power output is reduced, and endurance is improved. **METHODS/STUDY POPULATION:** Mid-costal DIAM strips were excised from 6-month ($n = 8$; 4 female and 4 male) and 24-month ($n = 8$; 4 female and 4 male) rats. The DIAM was stimulated using platinum plate electrodes, and mechanical and endurance properties were measured (at 26°C). **RESULTS/ANTICIPATED RESULTS:** In the DIAM, maximum tetanic force (P_0) decreased by ~35%, maximum velocity of shortening (V_{max}) slowed by ~20%, and peak power output was reduced by ~35% in 24-month compared to 6-month rats. During repetitive isovelocity (30% V_{max} ; approximating peak power output) contractions, endurance (the period during which power output was sustained) of the DIAM was unaffected by aging. Corresponding with previous findings, **DISCUSSION/SIGNIFICANCE OF IMPACT:** The changes in DIAM mechanical