OBJECTIVES/SPECIFIC AIMS: Black patients with hepatocellular carcinoma (HCC) receive fewer curative therapies and have higher mortality than other groups. Reducing this disparity will require an in-depth understanding of patient comorbidities, tumor characteristics, and social determinants of health. Our objectives are to:

a) perform a multi-center retrospective cohort study of black and white patients diagnosed with HCC in the Indianapolis area.

b) prospectively enroll black and white patients with HCC to collect clinical characteristics as well as data on the social determinants of health.

METHODS/STUDY POPULATION: A retrospective chart review of patients with a diagnosis of HCC from 2010-2017 from five area Indianapolis hospitals will be performed. Demographics, comorbidities, liver disease severity, and tumor characteristics will be collected using the Indiana Network for Patient Care database and compared between black and white patients. Concomitantly, a prospective cohort of black and white patients will be enrolled and surveyed to collect data on socioeconomic status and income adequacy, literacy, functional status, substance abuse history, social support, activation, and adherence. The primary outcomes are the receipt of curative therapies for HCC including liver transplantation, resection or ablation. The secondary outcome is mortality. Multivariable logistic regression models will be used to explore disparities seen in the primary and secondary outcomes.

RESULTS/ANTICIPATED RESULTS: These preliminary results include Indiana University Hospital (IUH) findings; a multicenter analysis is underway. The IUH cohort included 1,032 (86%) white and 164 (14%) black patients. Black and white patients had similar Model for End-Stage Liver Disease and Child-Pugh scores. There was a trend toward larger tumor size (5.3 cm vs. 4.7 cm; P = 0.05) in black patients; however, Barcelona Clinic Liver Cancer staging and Milan criteria were similar. Black patients were less likely to undergo liver transplantation than white patients—a disparity that was not attenuated (odds ratio [OR], 0.43; 95% confidence interval [CI]: 0.21-0.90) on multivariable analysis. Substance abuse was more frequently cited as the reason black patients within Milan criteria failed to undergo transplantation than white patients. Survival was similar between the two groups.

DISCUSSION/SIGNIFICANCE OF IMPACT: Racial differences in patient and tumor characteristics were small in our single center analysis and did not explain the disparity in liver transplantation. This analysis however only reflects 25% of patients diagnosed with HCC in the Indianapolis metropolitan, highlighting the need for a multicenter study. Higher rates of substance abuse in black patients within Milan criteria who failed to undergo transplantation suggest social factors contribute to this disparity and highlight the need for a prospective study that can explore these and other social factors.
Using Research Performance Progress Report data to Explore CTSI-Stakeholder Engagement through Network Analysis

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OBJECTIVES/SPECIFIC AIMS: To develop a social network model of collaborations within and external to the University of Rochester Medical Center (URMC) CTSI using data from the annual Research Performance Progress Report (RPPR) as well as other sources, to provide longitudinal evaluation of the CTSI’s engagement with key stakeholder groups. METHODS/STUDY POPULATION: The annually submitted RPPR follows a specific format with well-defined sections. The Highlights, Milestones and Challenges Report was qualitatively coded to identify function-collaborator dyads. Each entity in the dyad became a node in the network. Nodes were connected by edges named by the dyads. The network included two types of nodes. The first were CTSI internal functions/programs, i.e. the entities that submitted RPPR sections and formed an interconnected sub-network. The second type of nodes were entities external to the CTSI (collaborators, internal or external to the CTSI site). These entities were named by functions submitting RPPR narratives. External nodes with similar meanings were consolidated. Duplicate edges were removed. CTSI-external nodes were grouped into five stakeholder categories: URMC, University of Rochester (UR), community, other CTSA institutions, CTSA consortium. Thus, these nodes were connected to the CTSI internal nodes, but not to each other. A second source of collaboration data was function-reported internal metrics. As part of the internal metric data collection, functions list partners who play a role in improving metric data or who are responsible for providing data. Partners identified in the internal metrics data, but not specified in the RPPR, were added to the network. RESULTS/ANTICIPATED RESULTS: Twenty-three internal CTSI functions submitted an RPPR and represent the CTSI internal nodes. Internal CTSI functions identified 235 collaborations (edges): 125 collaborations with other CTSI internal functions, 57 collaborations with URMC entities, 14 with UR entities, 15 with the external community, 15 with other institutions (CTSA hubs and other universities), and 9 with CTSA consortium entities. Thirty-eight of the collaborations were identified in the internal metrics partners section. In total, the network comprised 104 nodes. Graph density was .022 for full network and .21 for the CTSI internal sub-network. The global clustering coefficient, a measure of connectivity, for the CTSI internal sub-network was .252. DISCUSSION/SIGNIFICANCE OF IMPACT: The RPPR provides an underutilized source of data for annually repeated analyses of internal and external CTSI collaborations and is a way to enhance use of this routinely collected information. Analyses of the network yield metrics for measuring CTSI reach and impact on stakeholder groups over time. For example, measures such as number of nodes representing entities external to CTSI and average vertex degree of the CTSI Internal nodes track aspects of CTSI collaborations. Visualizations using different layouts or highlighting different sub-networks provide a representation of CTSI engagement with the communities of stakeholders as well as insights to relationships between functions, regions of collaboration, and areas of gaps. These data also provide an important new mechanism to engage the CTSI leadership and function leads in understanding how their work contributes to the overall network and synergies they have with each other.

Willingness to Engage in a Statewide Virtual Community for Biomedical Research

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OBJECTIVES/SPECIFIC AIMS: Virtual communities are an untested method to enhance community engagement in biomedical research. Our CTSA Hubs collaborated to assess receptivity to integration and innovation, including collaborations with other functions or external groups. The Highlights, Milestones and Challenges Report was qualitatively coded to identify function-collaborator dyads. Each entity in the dyad became a node in the network. Nodes were connected by edges named by the dyads. The network included two types of nodes. The first were CTSI internal functions/programs, i.e. the entities that submitted RPPR sections and formed an interconnected sub-network. The second type of nodes were entities external to the CTSI (collaborators, internal or external to the CTSI site). These entities were named by functions submitting RPPR narratives. External nodes with similar meanings were consolidated. Duplicate edges were removed. CTSI-external nodes were grouped into five stakeholder categories: URMC, University of Rochester (UR), community, other CTSA institutions, CTSA consortium. Thus, these nodes were connected to the CTSI internal nodes, but not to each other. A second source of collaboration data was function-reported internal metrics. As part of the internal metric data collection, functions list partners who play a role in improving metric data or who are responsible for providing data. Partners identified in the internal metrics data, but not specified in the RPPR, were added to the network. RESULTS/ANTICIPATED RESULTS: Twenty-three internal CTSI functions submitted an RPPR and represent the CTSI internal nodes. Internal CTSI functions identified 235 collaborations (edges): 125 collaborations with other CTSI internal functions, 57 collaborations with URMC entities, 14 with UR entities, 15 with the external community, 15 with other institutions (CTSA hubs and other universities), and 9 with CTSA consortium entities. Thirty-eight of the collaborations were identified in the internal metrics partners section. In total, the network comprised 104 nodes. Graph density was .022 for full network and .21 for the CTSI internal sub-network. The global clustering coefficient, a measure of connectivity, for the CTSI internal sub-network was .252. DISCUSSION/SIGNIFICANCE OF IMPACT: The RPPR provides an underutilized source of data for annually repeated analyses of internal and external CTSI collaborations and is a way to enhance use of this routinely collected information. Analyses of the network yield metrics for measuring CTSI reach and impact on stakeholder groups over time. For example, measures such as number of nodes representing entities external to CTSI and average vertex degree of the CTSI Internal nodes track aspects of CTSI collaborations. Visualizations using different layouts or highlighting different sub-networks provide a representation of CTSI engagement with the communities of stakeholders as well as insights to relationships between functions, regions of collaboration, and areas of gaps. These data also provide an important new mechanism to engage the CTSI leadership and function leads in understanding how their work contributes to the overall network and synergies they have with each other.