Title: Developing a Clinical Tool to Identify Potential Risk Factors of Glioblastoma in Minnesotans

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Purpose
Glioblastoma (GBM) is a highly aggressive, malignant brain tumor. The cause of GBM in most patients is currently unknown. Unfortunately, this tumor results in death even when standard treatment is employed; the average survival is about 14 months. Due to lack of known risk factors for GBM, we cannot avoid causal agents or screen for this deadly tumor. The purpose of this study is to create a clinical questionnaire that can be used to collect data relating to potential risk factors for the development of GBM in patients from Minnesota.

Methods
First, we completed a literature search for known and potential risk factors of GBM using the PubMed search terms: risk factor, glioblastoma, GBM, high-grade astrocytoma, WHO grade 4 glioma. We then developed a short (<20 min) questionnaire based on our findings; we will build a REDCap instrument to capture patient-reported data. Our protocol and questionnaire will first undergo institutional IRB-approval. After informed consent, the questionnaire will be offered on an iPad to all new patients seen for a diagnosis of a primary brain tumor in the Department of Radiation Oncology at UMMC by Dr. Lindsey Sloan. Following this protocol, we will capture information from patients with our diagnosis of interest, as well as, comparator groups (e.g. non-GBM brain tumors, non-MN residents). We will also request access to patient paired non-tumor and tumor tissue samples (i.e., pre-treatment blood or saliva) for correlative genomic studies to be completed by our collaborators from the Division of Pediatric Epidemiology and Clinical Research.

Results
Our literature search identified known risk factors for the development of GBM including genetic alterations and radiation. Additional candidate risk factors include environmental (air pollution, metals, vegetation density, etc.), infectious, dietary, and occupational entities. Our poster at the MCC Research Symposium will highlight findings from our literature search on risk factors for GBM and feature our patient questionnaire. Questionnaire data will be collected, stored, and summated yearly.

Conclusion
This abstract is a summary of our work-in-progress in building a questionnaire to aid in the identification of causal agents of GBM. Through collection and analysis of these data, we aim to elucidate potential risk factors for GBM in Minnesotans. Ultimately, we hope to identify candidate risk factors that are worthy of state-wide, population-based study.