The Impact of the COVID-19 Pandemic on Health Care Delivery and Outcomes among Older Adults in the U.S.

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The initial decline and subsequent recovery in health care utilization in response to the COVID-19 pandemic is well-documented (Ziedan, Simon, and Wing 2020; Mehrotra et al. 2020b; 2020a; Birkmeyer et al. 2020). Less well understood is *how* providers altered the delivery of health care services, the extent to which those changes will persist during and beyond the pandemic, and the implications of those changes for patient health. The objective of this project is to examine how the COVID-19 pandemic affected non-COVID health care delivery for older adults.

Our underlying hypotheses are that some organizations were better positioned than others prior to the pandemic to respond to the challenges created by the pandemic for care delivery. We also hypothesize that, while many organizations introduced innovations in care processes during the pandemic, the extent to which these changes persisted post-pandemic varied across organizations and types of innovations. In addition, differences existed across markets in disease epidemiology, COVID policy and the competitive environment which influenced both immediate and longer-term provider responses. Our project will examine how these factors affected the delivery and outcomes of non-COVID care.

The project will focus on older adults, defined as those aged 45-64. This group faced a distinct set of challenges in accessing care during the pandemic. While they were at increased risk for COVID-19 infection and poor outcomes conditional on infection relative to younger adults (Prevention n.d.), they were also at high risk for negative health effects from lapses in routine care due to poor health (Buttorff, Ruder, and Bauman 2017). This created difficult trade-offs in ensuring access to safe care for non-COVID health concerns while simultaneously reducing the risk of COVID infection.

Our project will directly benefit from the extensive interaction between the Duke-Margolis Center for Health Policy and the provider community in the context of work on both COVID-19 policy development and health care transformation in the development of specific hypotheses regarding the impact of the pandemic on care processes. Examples of the types of issues we will examine include the substitution of telehealth for in-person services, changes in the extent to which and how patients use injectable and oral pharmaceuticals, delays in cancer screening and treatment, prioritization of patients for in-person visits in response to rising community infection risk, and changes in the use of mental health services and cardiovascular care. We will consider patients with a variety of chronic conditions and examine treatment outcomes specific to each condition, carefully considering both declines in health care use and substitution to other forms of care.

Our project will integrate several sources of data on provider organizations, health care market structure and health care use. Our primary source of data on population-level health care use will be the Health Care Cost Institute (HCCI) insurance claims. HCCI provides insurance claims from three large health insurers in a standardized format beginning in 2012, and HCCI has indicated that data for 2020 are expected to be available in late 2021, and this project would budget for subsequent data releases to examine the longer-term implications of innovation in care delivery. We will use information from Torch Insights to characterize private ACO activity and information from CMS to characterize public ACO activity. We will also use extensive data resources from CMS to characterize provider organization including claims-based measures of physician group size and composition and integration with hospitals.

Our basic study design will be to compare cohorts of patients across years, before and after the emergence of COVID-19, and to make comparisons across markets and subpopulations within each cohort to identify effects of policies and health care market characteristics. Our primary treatment cohorts will be comprised of patients observed in 2019 and their use of health care services during 2020. The control cohort will be patients observed prior to 2019, for example, patients identified in 2018 and following during 2019. The HCCI data, which is available as early as 2012, will allow us to use several historical cohorts as controls to reduce our reliance on a single year in the control cohort. These analyses will allow us to identify the major changes in how care was delivered during the COVID-19 pandemic. We will use two approaches to examine persistence in COVID-19 induced innovation. First, we will follow the initial treatment cohort over multiple years post 2020, adjusting the control cohorts to include only those with similar lengths of follow-up during the pre-COVID-19 period. Second, we will identify post-COVID cohorts based on patients first observed in 2020 or later, comparing them to cohorts of patients observed in 2019 or earlier. In this case, we will carefully analyze and account for any changes in patient composition due to pandemic-induced changes in health care delivery. Following patients for multiple years will facilitate the use of claims-based measures of outcomes of delayed care, such as delays in cancer diagnoses.

We will conduct all analyses separately by race and ethnicity and socioeconomic status using measures of population characteristics based on geographic location of patients. We will also examine differences by market type, characterizing markets based on their 2018-2019 structure.

To explicitly focus on underserved populations, we will conduct additional analyses on North Carolina where the combination of HCCI claims, which has broader coverage of NC insurers, and nearly “real-time” Medicaid claims, available through a relationship between Duke University and the North Carolina Department of Health and Human Services, will allow us to compare health care utilization between low-income Medicaid enrollees and privately insured patients in the same geographic areas. This will be an important supplement to our national HCCI analysis by providing detailed information on a more vulnerable population. The NC Medicaid claims, with individual-level information on race and ethnicity, will also allow us to directly examine differences in care delivery along these dimensions. When implementing our project, we will use the Health Equity and Anti-Racism Research Toolkit developed by the Duke-Margolis Center’s Anti-Racism and Equity Committee. The toolkit aims to help Margolis research staff and faculty prioritize health equity and anti-racism during the early implementation stages of research projects.

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