Changes in Mammography Utilization by Women's Characteristics During the First 5 Months of the COVID-19 Pandemic

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WORD COUNT: Abstract, 249; Manuscript, 2960.

ABBREVIATIONS:

BCSC, Breast Cancer Surveillance Consortium

BI-RADS, Breast Imaging Reporting and Data System

CI, Confidence interval

ABSTRACT

Background: The coronavirus disease 2019 (COVID-19) pandemic led to a near-total cessation of mammography services in the United States in mid-March 2020. It is unclear if screening and diagnostic mammography volumes have recovered to pre-pandemic levels and whether utilization has varied by women's characteristics.

Methods: We collected data on 461,083 screening mammograms and 112,207 diagnostic mammograms conducted during January 2019 through July 2020 at 62 radiology facilities in the Breast Cancer Surveillance Consortium. We compared monthly screening and diagnostic mammography volumes before and during the pandemic, stratified by age, race/ethnicity, breast density, and family history of breast cancer.

Results: Screening and diagnostic mammography volumes in April 2020 were 1.1% (95% confidence interval [CI] = 0.5% to 2.4%) and 21.4% (95% CI = 18.7% to 24.4%) of April 2019 pre-pandemic volumes, respectively, but by July 2020 rebounded to 89.7% (95% CI = 79.6% to 101.1%) and 101.6% (95% CI = 93.8% to 110.1%) of July 2019 pre-pandemic volumes, respectively. The year-to-date cumulative volume of screening and diagnostic mammograms performed through July 2020 was 66.2% (95% CI = 60.3% to 72.6%) and 79.9% (95% CI = 75.4% to 84.6%), respectively, of year-to-date volume through July 2019. Screening mammography rebound was similar across age groups and by family history of breast cancer. Monthly screening mammography volume in July 2020 for Black, White, Hispanic, and Asian women reached 96.7% (95% CI = 88.1% to 106.1%), 92.9% (95% CI = 82.9% to 104.0%), 72.7% (95% CI =

56.5% to 93.6%), and 51.3% (95% CI = 39.7% to 66.2%) of July 2019 pre-pandemic volume, respectively.

Conclusion: Despite a strong overall rebound in mammography volume by July 2020, the rebound lagged among Asian and Hispanic women and a substantial cumulative deficit in missed mammograms accumulated, which may have important health consequences.

The coronavirus disease 2019 (COVID-19) pandemic dramatically disrupted breast cancer screening and diagnostic imaging in the United States. In March 2020, the Centers for Disease Control and Prevention recommended postponing elective procedures to mitigate the spread of COVID-19 in healthcare settings and nearly all states issued emergency executive orders barring elective medical procedures.[1] A number of studies reported a near-total cessation of breast cancer screening in the United States (US) in late March and early April 2020.[2-7] Less information is available on diagnostic mammography with two studies reporting that volume was reduced by as much as 80% during the early stage of the pandemic.[8,9]

By May 2020 the orders banning elective procedures were lifted and radiology professional societies released best practice guidelines for resuming routine breast imaging services during the pandemic, including recommendations for COVID-19 screening, social distancing, and personal protective equipment.[10-13] The Society of Breast Imaging suggested that for facilities with continued limited capacity, examinations could be prioritized in order of medical necessity, for example focusing first on women receiving ongoing treatment for breast cancer, then biopsies, diagnostic imaging for abnormal findings on screening mammography, and finally screening – possibly prioritizing higher risk women if necessary and feasible.[10]

The pace and capacity at which breast imaging services have resumed remain unclear. A few reports suggested that screening mammography volumes began to rebound in May 2020, but were still reduced in early June 2020 by more than 25% compared to pre-pandemic levels.[8,9,14] While containment of the pandemic improved in the US in June 2020, a second peak in COVID-19 cases occurred in the US during July 2020, which exceeded the April 2020 peak both in case counts and pervasiveness in small cities and rural areas. Furthermore, it is

unknown whether the rebound in mammography volume has varied by sociodemographic factors and/or breast cancer risk factors. For example, women at higher risk of breast cancer may be more motivated to obtain mammography, while older women may be deterred due to a higher risk of COVID-19 infection and mortality. Women in minority racial and ethnic groups have experienced a greater burden of COVID-19 health effects due to social and economic structural inequities[15-17] but patterns of preventive healthcare utilization, such as mammography, are poorly understood.

We sought to characterize the depth and duration of the COVID-19 pandemic's disruption to breast cancer screening and diagnostic imaging, using data from a large, geographically diverse sample of breast imaging facilities participating in the Breast Cancer Surveillance Consortium (BCSC). We stratified results by women's characteristics to evaluate trends within specific subgroups defined by age, race/ethnicity, breast density, and family history of breast cancer.

Methods

Study Design and Setting

We used data prospectively collected by six breast imaging registries within the BCSC: Kaiser Permanente Washington Registry, Metropolitan Chicago Breast Cancer Registry, New Hampshire Mammography Network, Sacramento Area Breast Imaging Registry, San Francisco Mammography Registry, and Vermont Breast Cancer Surveillance System.[18,19] Each registry collects data from participating radiology facilities within its catchment area. Participating

facilities are linked by their agreements to share data with a central data repository; there is no effort to coordinate clinical operations or policy through the BCSC. This study was restricted to BCSC facilities providing complete mammography volume data from January 2019 through July 2020 (N=62). The registries received institutional review board approval for either active or passive consenting processes or a waiver of consent.

Data Collection

Participating radiology facilities provided breast imaging data, including modality, date of examination, examination indication, and breast density, to BCSC registries using standard nomenclature defined by the Breast Imaging Reporting and Data System (BI-RADS).[20] The standard BI-RADS density categories (a=almost entirely fat; b=scattered fibroglandular density; c=heterogeneously dense; and d=extremely dense) were recorded by the interpreting radiologist.[20] Age, race/ethnicity, and first degree family history of breast cancer were self-reported via a questionnaire completed at each mammogram or extracted from the electronic medical record.

Statistical Analysis

All screening and diagnostic mammograms among women aged 18 and older were included in analyses. Each BCSC registry prepared monthly counts of screening and diagnostic mammograms for their participating facilities for January 2019 through July 2020. The data were pooled across registries, and we calculated the relative rate of mammography exams in 2020 vs. 2019 by month. To account for clustering within BCSC registries, we estimated 95%

confidence intervals (CIs) using a Poisson model with overdispersion and adjustment for registry site. Stratified analyses were conducted by age group (40-49, 50-59, 60-69, 70-79 years), race/ethnicity (White, Black, Asian, and Hispanic/Latina), breast density (almost entirely fat, scattered areas of fibroglandular density, heterogeneously dense, and extremely dense), and first degree family history of breast cancer (yes, no). Ethnicity data (Hispanic vs. non-Hispanic) were not available at 29 facilities, which provided counts by race only (White, Black, and Asian). Given historical data indicating that less than 10% of women attending these 29 facilities were of Hispanic ethnicity, these counts by race were combined with counts of Non-Hispanic White, Non-Hispanic Black, and Non-Hispanic Asian women from the other 33 facilities; the 29 facilities were excluded from analyses of trends among Hispanic women. A sensitivity analysis was performed excluding these 29 facilities from analysis of Non-Hispanic White women. Insufficient sample size was available to evaluate mammography patterns among other specific racial/ethnic groups, including American Indians and Alaska Natives. Family history of breast cancer was not available at three facilities; these facilities were excluded from analyses of mammography volume by family history of breast cancer. All statistical analyses were performed in SAS Version 9.4 (SAS Institute Inc., Cary, North Carolina).

Results

A total of 461,083 screening mammograms and 112,207 diagnostic mammograms were performed during January 2019 through July 2020. Counts of mammograms by geographic region in the reference month of July 2019 were: 7,928 (22.8%) New England; 16,591 (47.7%)

Midwest; 6,327 (18.2%) Northern California; and 3,935 (11.3%) Pacific Northwest. Of the radiology facilities, 14.5% were affiliated with an academic medical center and 50.0% were hospital-based. Fifteen facilities (24%) reported closing temporarily to both screening and diagnostic mammography at some point during the study period due to the pandemic, including twelve in March, fifteen in April, nine in May, one in June, and one in July. The study population was 70.8% White, 10.9% Black, 7.5% Asian, 2.1% Hispanic, and 8.7% had other or unknown race/ethnicity.

During 2019, approximately 28,000 screening mammograms and 6,500 diagnostic mammograms were performed per month in total across the participating facilities. In 2020, mammography volume reached a minimum in April when screening and diagnostic mammography volumes were 1.1% (95% CI = 0.5% to 2.4%) and 21.4% (95% CI = 18.7% to 24.4%) of April 2019 volumes, respectively (**Table 1**, **Figure 1**). Mammography volumes began rebounding in May 2020 and by June 2020, diagnostic mammography had rebounded to 98.0% (95% CI = 90.2% to 106.6%) of pre-pandemic levels. However, screening mammography volumes remained moderately lower in June (83.8%; 95% CI = 73.9% to 95.0%) and July 2020 (89.7%; 95% CI = 79.6% to 101.1%) compared to their pre-pandemic levels.

A cumulative 126,040 screening mammograms were performed during January – July 2020, corresponding to 66.2% (95% CI = 60.3% to 72.6%) of the year-to-date total (n = 190,454) through July 2019 (**Figure 2**). For diagnostic mammography, the year-to-date cumulative volume through July 2020 was 35,647, corresponding to 79.9% (95% CI = 75.4% to 84.6%) of the year-to-date total (n = 44,610) through July 2019.

For screening mammography during the pandemic, temporal trends were similar across age groups and in women with and without a family history of breast cancer (**Figure 3**). In July 2020, screening mammography volume had rebounded to 92.9% (95% CI = 82.9% to 104.0%) and 96.7% (95% CI = 88.1% to 106.1%) of July 2019 volume among White and Black women, respectively, and 72.7% (95% CI = 56.5% to 93.6%) among Hispanic women and 51.3% (95% CI = 39.7% to 66.2%) among Asian women. While absolute levels of rebound varied across regional registries as of July 2020, the pattern of low rebound among Asian and Hispanic women was generally consistent across registries (**Supplementary Table 1**). One registry observed full recovery among both Asian and Hispanic women, though the confidence limits were wide due to small sizes of these groups in that registry. When the 29 facilities with unavailable ethnicity data were excluded, the rebound in screening mammography volume among White women was slightly lower (87.9%; 95% CI = 76.0% to 101.8%; data not shown). Screening mammography volumes rebounded in July 2020 to 88.1% (95% CI = 76.4% to 101.6%), 87.3% (95% CI = 77.9% to 97.9%), 95.1% (95% CI = 83.0% to 108.9%), and 77.4% (95% CI = 63.2% to 94.9%) of July 2019 volumes among women with breast density categories a (almost entire fat), b (scattered fibroglandular densities), c (heterogeneously dense), and d (extremely dense breasts), respectively (**Figure 3**).

The decline in diagnostic mammography volume during March-April 2020 was somewhat more pronounced among women age 70 years and older compared to women under age 70 (**Figure 4**). By July 2020 all age groups had recovered to pre-pandemic diagnostic mammography volumes. Diagnostic mammography volumes recovered to pre-pandemic levels among White women (102.5%; 95% CI = 91.6% to 114.7%) and Black women (103.0%; 95% CI =

90.4% to 117.4%), but remained lower among Hispanic women (64.9%; 95% CI = 48.5% to 86.9%) and Asian women (74.8%; 95% CI = 61.1% to 91.5%). There was little difference in temporal trends according to breast density or first-degree family history of breast cancer.

Discussion

In this large, geographically diverse study of radiology facilities, overall monthly mammography counts rebounded strongly in June and July 2020 following severe disruptions in mammography services during March through May 2020. Screening mammography volume was only moderately lower as of July 2020, while diagnostic mammography volumes were comparable to pre-pandemic levels. However, the cumulative year-to-date reductions in mammography during the pandemic through July 2020 indicate a substantial deficit of missed screening and diagnostic examinations over 5 months. We observed wide variation in mammography volume trends across the 6 BCSC registries among Asian and Hispanic women, but the general pattern of lower rebound compared to White women was consistent across most registries.

Our results for March through May 2020 are largely consistent with early reports on screening mammography volumes during the pandemic, which observed nearly complete discontinuation of mammography screening during late March and early April 2020.[2-7] One study reported that the volume of screening mammography in six academic medical systems in the US began to rebound at the end of May 2020.[8] Analyses of healthcare claims data from 60 healthcare organizations in the US reported that as of mid-June 2020, the weekly volume of breast cancer screening examinations was 29% lower than the pre-pandemic level.[14] Our

findings extend this prior literature to show that screening volume continued to rebound through June and July but had not yet completely recovered to pre-pandemic levels. Further, we found that diagnostic mammography volumes reached pre-pandemic levels by June 2020.

Our results indicate that, as of July 2020, facilities had largely succeeded in returning to full capacity services. However, increased volumes above pre-pandemic levels would be required to make up the cumulative number of missed examinations experienced to date in 2020 during the pandemic. Facilities may not have the capacity to handle increased volumes relative to their pre-pandemic workloads. The degree to which imaging facilities may be able to catch up on the cumulative deficit in screening and diagnostic mammography will depend on a wide array of factors, including the future course of the COVID-19 pandemic, the capacity to offer additional imaging volume (e.g., expanded hours, additional staffing, etc.), the willingness of women to visit medical facilities for cancer screening services, and the impact of the pandemic on women's health care access (e.g., loss of health insurance). Increasing capacity may be difficult as many facilities have spread out appointment times to allow for social distancing and extra cleaning between appointments.

The observed magnitude of reduction in mammography utilization is likely to have an impact on breast cancer diagnosis. Based on early reports during the pandemic, the IQVIA Institute for Human Data Science predicted a 69% decrease in breast cancer screening during March through May 2020, which they estimated would lead to delayed breast cancer diagnosis for 36,000 women.[21] Our results are remarkably close to their prediction, with an observed reduction of 70.9% in screening during March-May 2020. Preliminary results from the University of Wisconsin CISNET (Cancer Intervention and Surveillance Modeling Network)

breast cancer model estimated that a 75% reduction in screening over 6 months coupled with a 6-month delay in diagnosis for one-third of women with a positive screening mammogram or clinical symptoms would result in over 5,000 excessive breast cancer deaths (a 1% increase) in the United States between 2020 and 2030.[22] Further research is needed to understand the impact of reduced mammography utilization during the pandemic on breast cancer detection and outcomes.

To our knowledge, our study is the first to report trends in mammography utilization during the pandemic according to women's characteristics. Our findings indicate that the rebound in mammography utilization as of July 2020 had lagged considerably among Asian and Hispanic women. These results echo a wide array of evidence suggesting that the COVID-19 pandemic has disproportionately affected racial and ethnic minority groups in the US,[15-17] although our findings indicate strong rebound in mammography volumes among Black women. The large, geographically diverse sample of community and academic breast imaging facilities in the BCSC includes facilities that collectively serve a racially diverse population of women. Nevertheless, Black, Asian, and Hispanic women in our study population were largely concentrated in specific geographic regions (Chicago, San Francisco, Sacramento, and western Washington state) and thus may not be representative of trends in other specific regions.

In the absence of more nationally representative data, our results suggest that increased attention is needed to understand the reasons for persistently lower rates of breast imaging in Asian and Hispanic women. Differences in mammography utilization by race/ethnicity are likely a product of both individual-level factors and healthcare system factors. For example, individuals in some racial/ethnic groups may have experienced

heightened socioeconomic pandemic impacts (e.g., loss of health insurance), may have higher levels of worry about COVID-19 risk, and may face systemic racism within the healthcare system that reduced their access to mammography. Additionally, mammography facilities that serve these communities may have experienced more severe COVID-associated impacts that reduced their capacity to provide mammography services or conduct outreach to women to schedule examinations. Further research is urgently needed to understand barriers to mammography utilization during the pandemic and strategies to effectively overcome them.

The American College of Radiology recently released a "Return to Mammography" toolkit to support radiology practices in encouraging women to attend mammography screening, including pamphlets and infographics, and templates for letters to women and referring providers emphasizing the importance of mammography and the safety precautions in place at radiology facilities to promote safe attendance at mammography examinations.[23] These and other initiatives could be expanded to specifically address screening and diagnostic mammography services for groups of women who may face structural barriers to healthcare utilization due to the pandemic.

Our results do not support the hypothesis that women at elevated breast cancer risk, such as those with a family history of breast cancer, were any less likely to postpone mammography during the pandemic or more likely to reschedule promptly. Women with extremely dense breasts, who are at elevated breast cancer risk, were somewhat more likely to postpone mammography screening. This may possibly be due to lower screening utilization among Asian women, who are more likely to have extremely dense breasts.[24] Overall, these results suggest that prioritization for screening mammography is not occurring by radiology

facilities or among women themselves based on breast cancer risk. The rapid rebound of diagnostic mammography volume relative to a lag in screening mammography suggests that facilities may be prioritizing women in need of diagnostic imaging, consistent with SBI guidance.[10]

Overall, we observed similar trends in mammography utilization during the pandemic across most age groups. The one exception was the steeper decline and slower rebound in diagnostic mammography utilization among older women (aged >70 years) during the first few months of the pandemic. It is likely this age group experienced heightened fear of COVID-19 infection and may have perceived the risks of attending a medical facility and exposure to COVID-19 to be greater than the risk of delaying a possible breast cancer diagnosis. Our findings also suggest that, like the other age groups, diagnostic evaluations had recovered fully as of 2020 among older women.

Strengths of our study include the BCSC's prospectively collected mammography data with standardized data elements for examination indication and women's characteristics. Limitations include the use of aggregate data, which precluded multivariable analyses or examination of variation in trends across facility practice characteristics. Future studies with individual-level data should disentangle the relationships between race/ethnicity, breast density and other factors with the pandemic's influence on mammography utilization. We were also unable to determine from these data what percentage of recent examinations are "catch-up" examinations of women who previously delayed imaging and what percentage of women are continuing to choose to delay imaging.

Our study aggregated data from multiple geographic regions to provide a high-level overview of mammography utilization during the pandemic; additional study is required to examine the impact of local/regional COVID-19 case burdens, pandemic-associated policies (e.g., restrictions on elective procedures, mask mandates, etc.), and healthcare system characteristics on local mammography volumes. Our study population included a small proportion of Hispanic women; further investigation of facilities serving large communities of Hispanic women is needed. We did not examine changes in cancer outcomes during the study period; future work is needed to evaluate the impact of changes in mammography utilization on breast cancer incidence, stage at diagnosis, and mode of detection. Finally, since our analyses used mammography volumes prior to the pandemic as a baseline, our results do not fully capture the deficit in screening mammography utilization in the US, particularly among women without health insurance or a usual source of care or other factors associated with low mammography use.[25]

Overall, our results provide a broader understanding of the COVID-19 pandemic's impact on breast cancer screening from a large, geographically- and racially-diverse study population. Our findings indicate that radiology facilities resumed high capacity monthly volumes by July 2020, despite the fact that the COVID-19 pandemic is ongoing. Mammography volumes lagged substantially among Asian and Hispanic women, and across all groups there are large cumulative deficits of missed mammograms that are likely to adversely impact early breast cancer detection and breast cancer outcomes.

Funding

This work was supported by the National Cancer Institute (R01CA248068). Data collection for this research was additionally supported by grants P01CA154292 and U54CA163303 from the National Cancer Institute, grant R01 HS018366-01A1 from the Agency for Healthcare Research and Quality, and award PCS-1504-30370 from the Patient-Centered Outcomes Research Institute (PCORI). The collection of SABIR data was supported by the UC Davis Comprehensive Cancer Center, the Placer County Breast Cancer Foundation, and the UC Davis Clinical and Translational Science Center. Grants P30CA014520 and P20GM103644 from the National Institutes of Health also supported the work in this study. Ms. Bowles's effort was supported by the National Cancer Institute (R50CA211115).

Notes

Role of the Funder: The sponsors had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Disclosures: Dr Lowry reports receiving grants from GE Healthcare outside the submitted work. Dr. Miglioretti reports being a member of the Hologic Scientific Advisory Board. Dr. Lee reports receiving grants, personal fees, and nonfinancial support from GE Healthcare outside the submitted work. Dr. Kerlikowske is an unpaid consultant with Grail Inc. for the STRIVE study. No other conflict of interest disclosures are reported.

Author Contributions: Concept and design: Sprague, Lowry, Rauscher, Stout, Kerlikowske. Acquisition, analysis, or interpretation of the data: All authors. Drafting of the manuscript: Sprague. Critical revision of the manuscript for important intellectual content: All authors. Statistical analysis: Sprague. Obtained funding: Sprague, Lowry, Rauscher, Miglioretti, Tosteson, Stout, Kerlikowske

Disclaimer: The statements presented in this work are solely the responsibility of the authors and do not necessarily represent the official views of PCORI, its Board of Governors or Methodology Committee, the National Cancer Institute, or the National Institutes of Health.

Acknowledgements: We thank the participating women, mammography facilities, and radiologists for the data they have provided for this study. You can learn more about the BCSC at: http://www.bcsc-research.org/.

Data Availability

The data underlying this article will be shared on reasonable request to the corresponding author.

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Table 1. Monthly mammography volume at 62 Breast Cancer Surveillance Consortium facilities during January-June of 2019 and 2020[a]

	Screening Mammograms				Diagnostic Mammograms			
Month	2019	2020	Difference	% of 2019 (95% CI)	2019	2020	Difference	% of 2019 (95% CI)
January	26,059	28,069	2,010	107.7 (95.7 to 121.3)	6,279	6,723	444	107.1 (98.8 to 116.1)
February	24,047	25,565	1,518	106.3 (93.9 to 120.3)	5,685	5,965	280	104.9 (96.4 to 114.3)
March	27,988	14,237	-13,751	50.9 (44.1 to 58.6)	6,394	4,805	-1,589	75.1 (68.8 to 82.0)
April	29,390	317	-29,073	1.1 (0.5 to 2.4)	6,792	1,452	-5,340	21.4 (18.7 to 24.4)
May	28,360	10,422	-17,938	36.7 (31.4 to 43.0)	6,733	3,988	-2,745	59.2 (54.0 to 64.9)
June	26,425	22,151	-4,274	83.8 (73.9 to 95.0)	6,131	6,011	-120	98.0 (90.2 to 106.6)
July	28,185	25,279	-2,906	89.7 (79.6 to 101.1)	6,596	6,703	107	101.6 (93.8 to 110.1)

[a] CI, confidence interval

Figure legends

Figure 1. Monthly screening and diagnostic mammography volume at 62 Breast Cancer Surveillance Consortium facilities during January 2019 – July 2020. (A) Monthly counts of screening mammography examinations; (B) Monthly counts of diagnostic mammography examinations; (C) Monthly screening and diagnostic mammography volume in 2020 expressed as a percent of monthly 2019 volume.

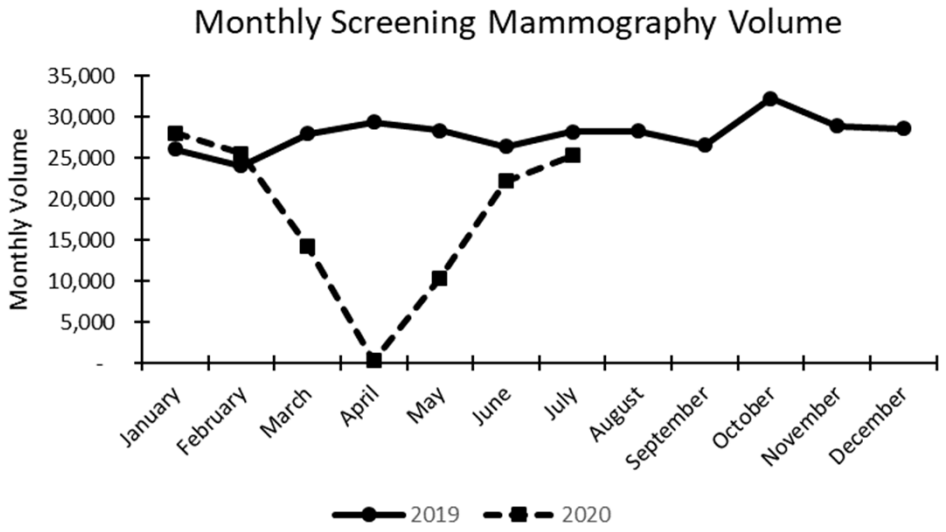
Figure 2. Year-to-date cumulative screening and diagnostic mammography volume at 62 Breast Cancer Surveillance Consortium facilities during January – July for 2019 and 2020. (A) Year-to-date cumulative counts of screening mammography examinations; (B) Year-to-date cumulative counts of diagnostic mammography examinations; (C) Cumulative year-to-date screening and diagnostic mammography volume in 2020 expressed as a percent of cumulative year-to-date 2019 volume.

Figure 3. Monthly screening mammography volume at 62 Breast Cancer Surveillance Consortium facilities during January – July 2020 according to women's characteristics, expressed as a percent of 2019 monthly volume. (A) Age group in years; (B) Race/ethnicity; (C) Breast density; (D) First degree family history of breast cancer.

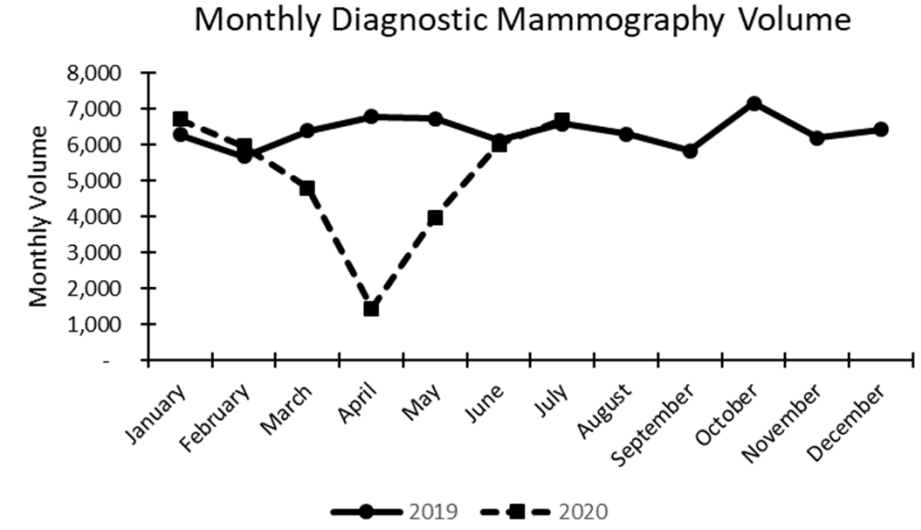
Figure 4. Monthly diagnostic mammography volume at 62 Breast Cancer Surveillance Consortium facilities during January – July 2020 according to women's characteristics, expressed as a percent of 2019 monthly volumes. (A) Age group in years; (B) Race/ethnicity; (C) Breast density; (D) First degree family history of breast cancer.

Figure 1

A


Monthly Screening Mammography Volume
Monthly Volume
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
January
February
March
April
May
June
July
August
September
October
November
December
2019
2020

B


Monthly Diagnostic Mammography Volume
Monthly Volume
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
January
February
March
April
May
June
July
August
September
October
November
December
2019
2020

C

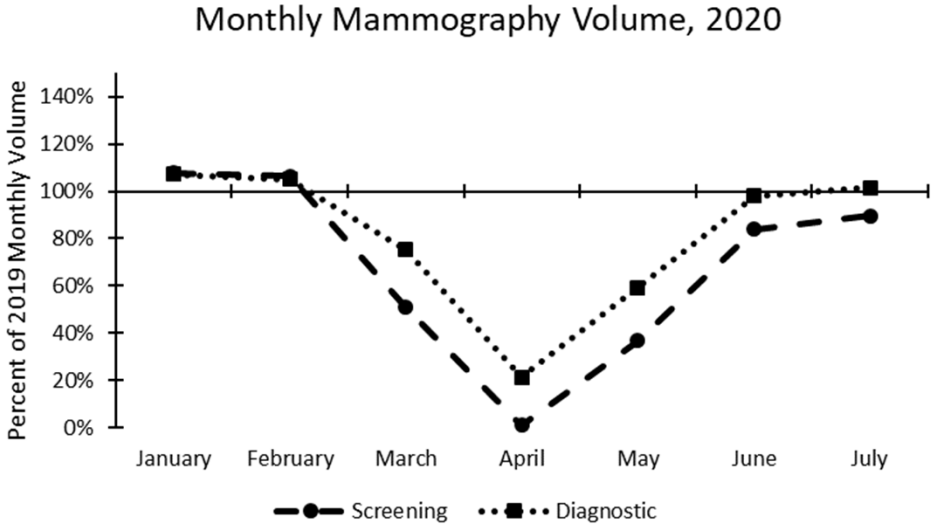
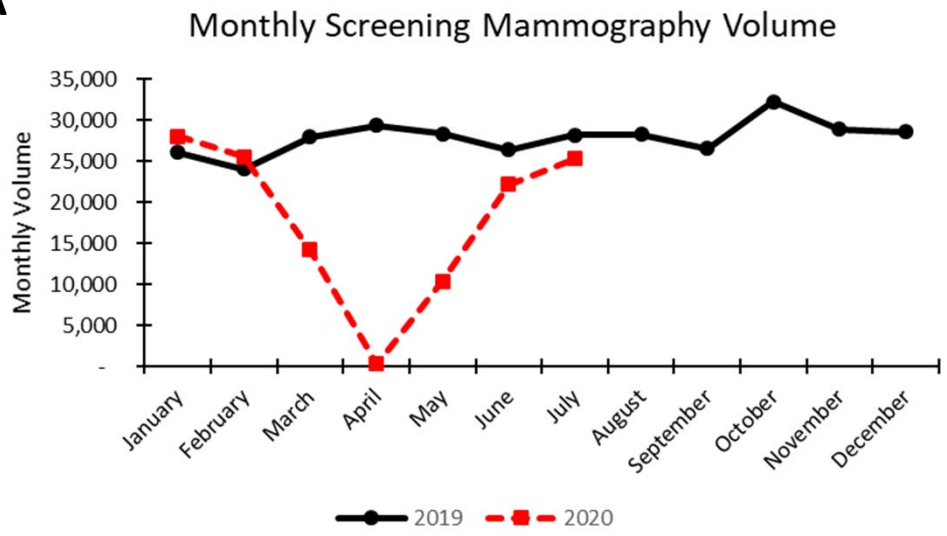
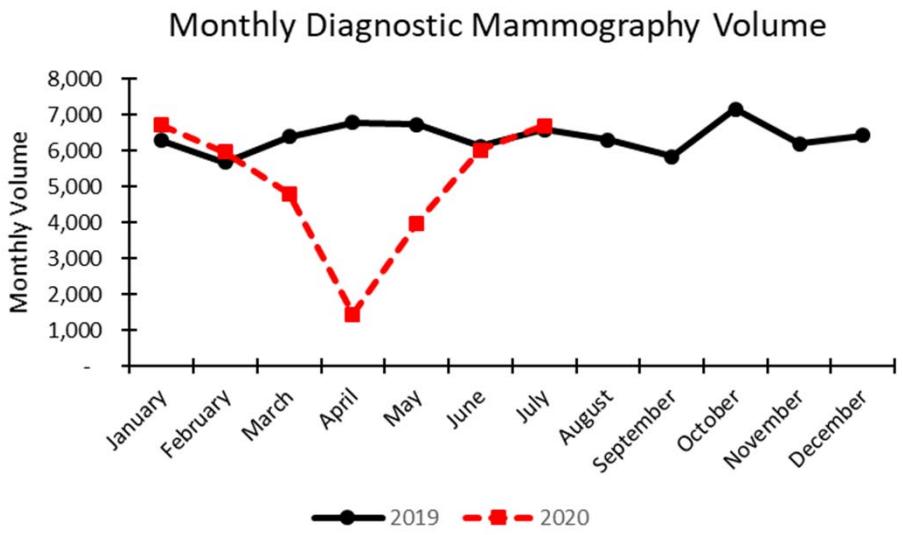

Monthly Mammography Volume, 2020
Percent of 2019 Monthly Volume
140%
120%
100%
80%
60%
40%
20%
0%
January
February
March
April
May
June
July
Screening
Diagnostic

Figure 1

A


Monthly Screening Mammography Volume
Monthly Volume
35,000
30,000
25,000
20,000
15,000
10,000
5,000
-
January
February
March
April
May
June
July
August
September
October
November
December
2019
2020

B


Monthly Diagnostic Mammography Volume
Monthly Volume
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
-
January
February
March
April
May
June
July
August
September
October
November
December
2019
2020

C

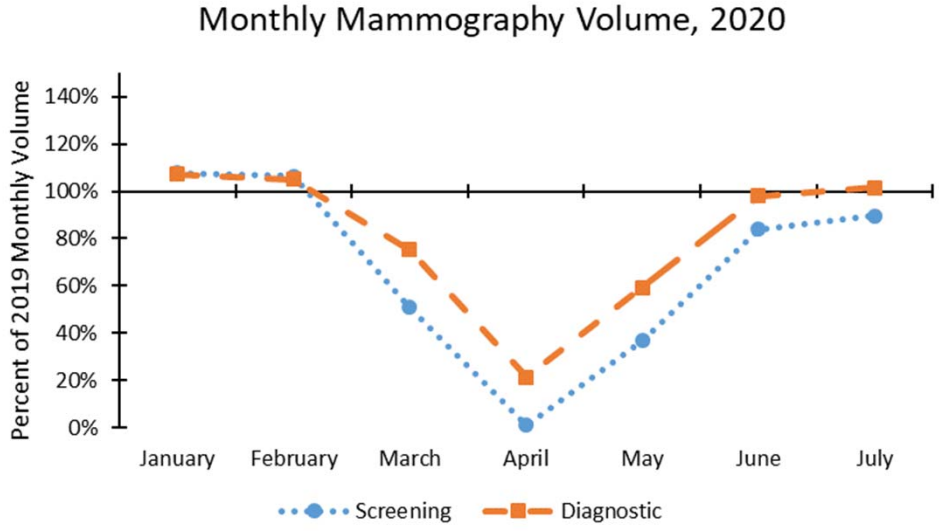
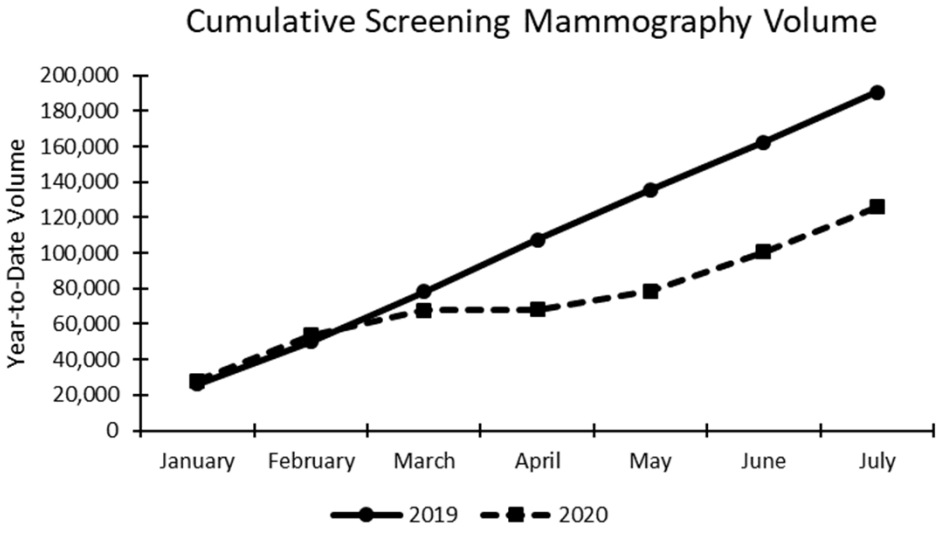
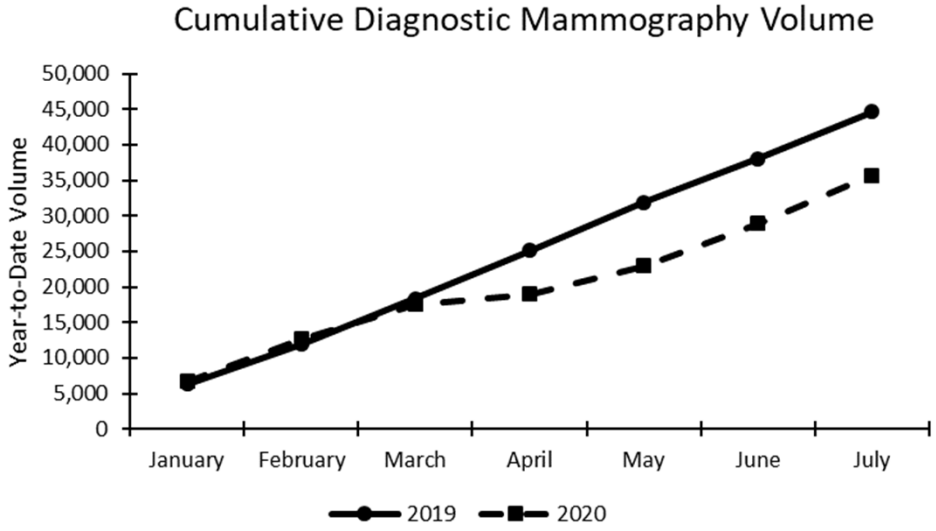

Monthly Mammography Volume, 2020
Percent of 2019 Monthly Volume
140%
120%
100%
80%
60%
40%
20%
0%
January
February
March
April
May
June
July
Screening
Diagnostic

Figure 2

A


Cumulative Screening Mammography Volume
Year-to-Date Volume
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
January
February
March
April
May
June
July
2019
2020

B


Cumulative Diagnostic Mammography Volume
Year-to-Date Volume
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
January
February
March
April
May
June
July
2019
2020

C

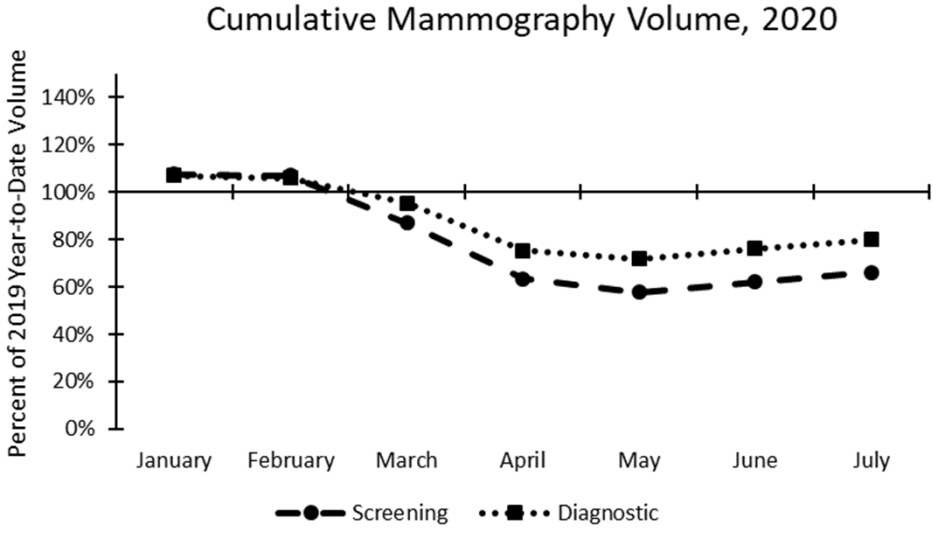

Cumulative Mammography Volume, 2020
Percent of 2019 Year-to-Date Volume
140%
120%
100%
80%
60%
40%
20%
0%
January
February
March
April
May
June
July
Screening
Diagnostic

Figure 2

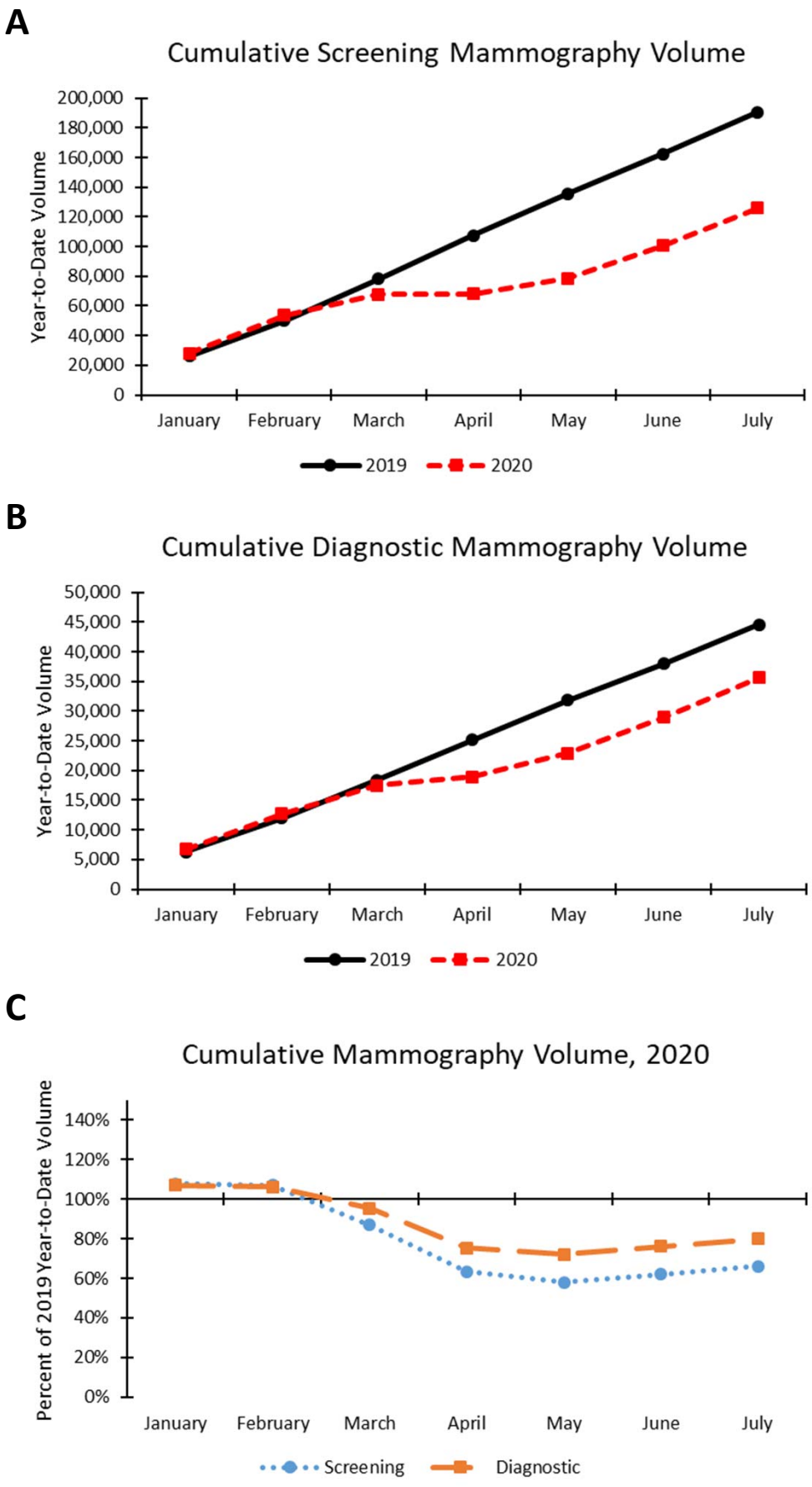

A
Cumulative Screening Mammography Volume
Year-to-Date Volume
200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
January
February
March
April
May
June
July
2019
2020
B
Cumulative Diagnostic Mammography Volume
Year-to-Date Volume
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
January
February
March
April
May
June
July
2019
2020
C
Cumulative Mammography Volume, 2020
Percent of 2019 Year-to-Date Volume
140%
120%
100%
80%
60%
40%
20%
0%
January
February
March
April
May
June
July
Screening
Diagnostic

Figure 3

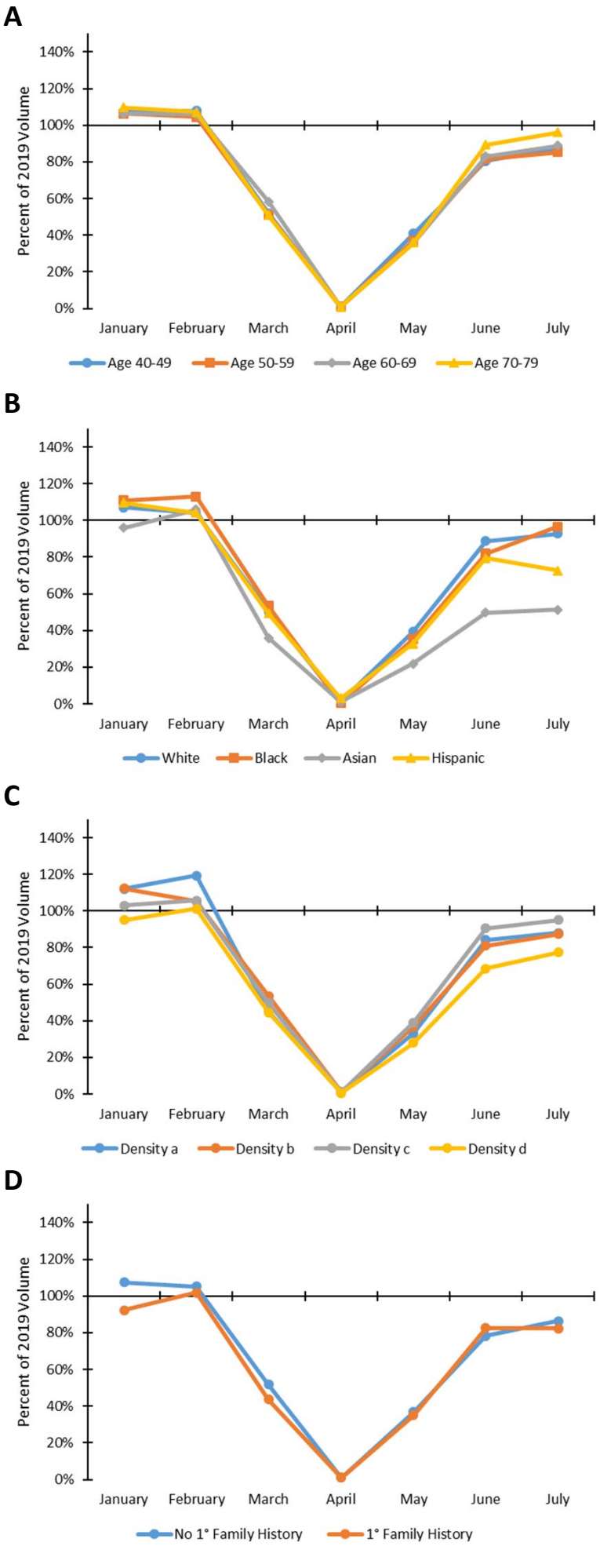
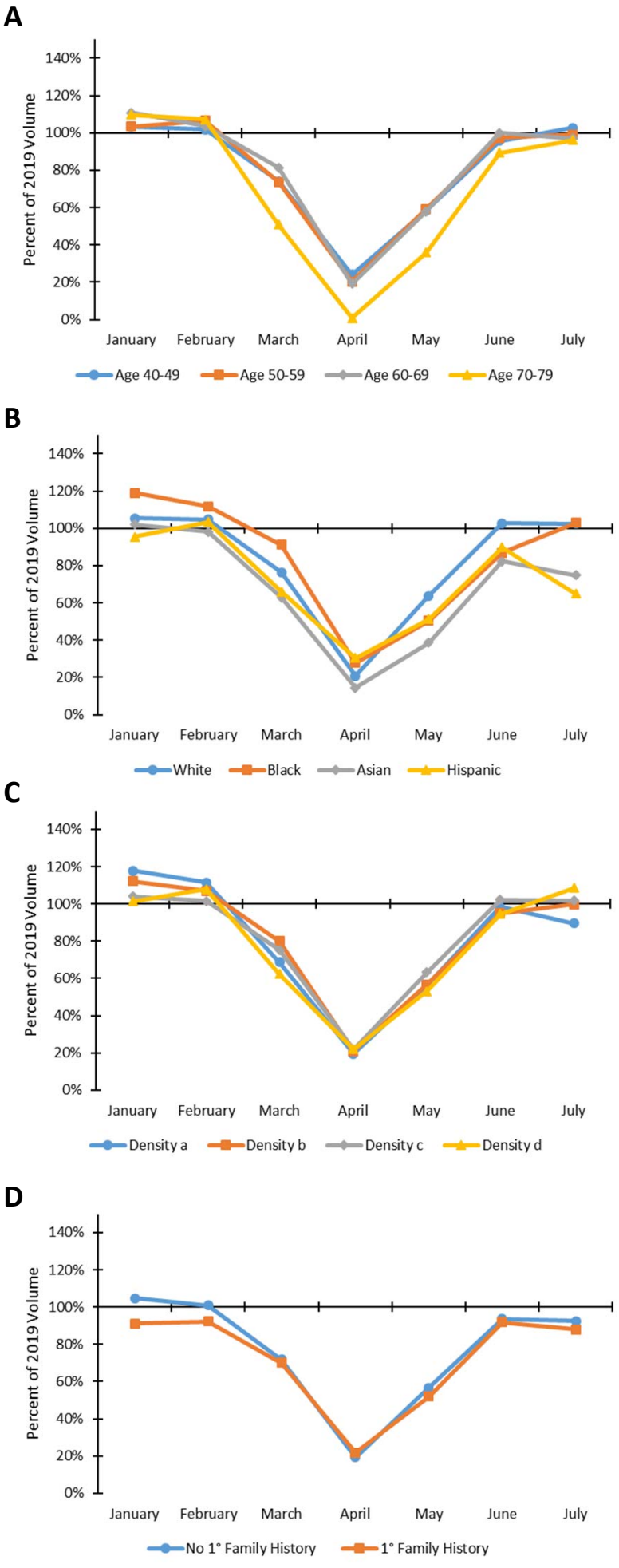

A
140%
120%
100%
80%
60%
40%
20%
0%
Percent of 2019 Volume
January
February
March
April
May
June
July
Age 40-49
Age 50-59
Age 60-69
Age 70-79
B
White
Black
Asian
Hispanic
C
Density a
Density b
Density c
Density d
D
No 1° Family History
1° Family History

Figure 4


A
140%
120%
100%
80%
60%
40%
20%
0%
Percent of 2019 Volume
January
February
March
April
May
June
July
Age 40-49
Age 50-59
Age 60-69
Age 70-79
B
White
Black
Asian
Hispanic
C
Density a
Density b
Density c
Density d
D
No 1° Family History
1° Family History