

A Comparative Analysis of Breast and Colorectal Cancer Screening Pre-pandemic and During the Pandemic: An Opportunity for Outreach?

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**THE QUEEN'S
MEDICAL CENTER**

Specific Aim

- To evaluate the impact of the COVID-19 pandemic on breast and colorectal cancer screening at The Queen's Medical Center (QMC)

Secondary Aim

- To determine if there were any notable differences in patient demographics and characteristics between those who sought either breast or colorectal cancer screening pre-pandemic and during the pandemic

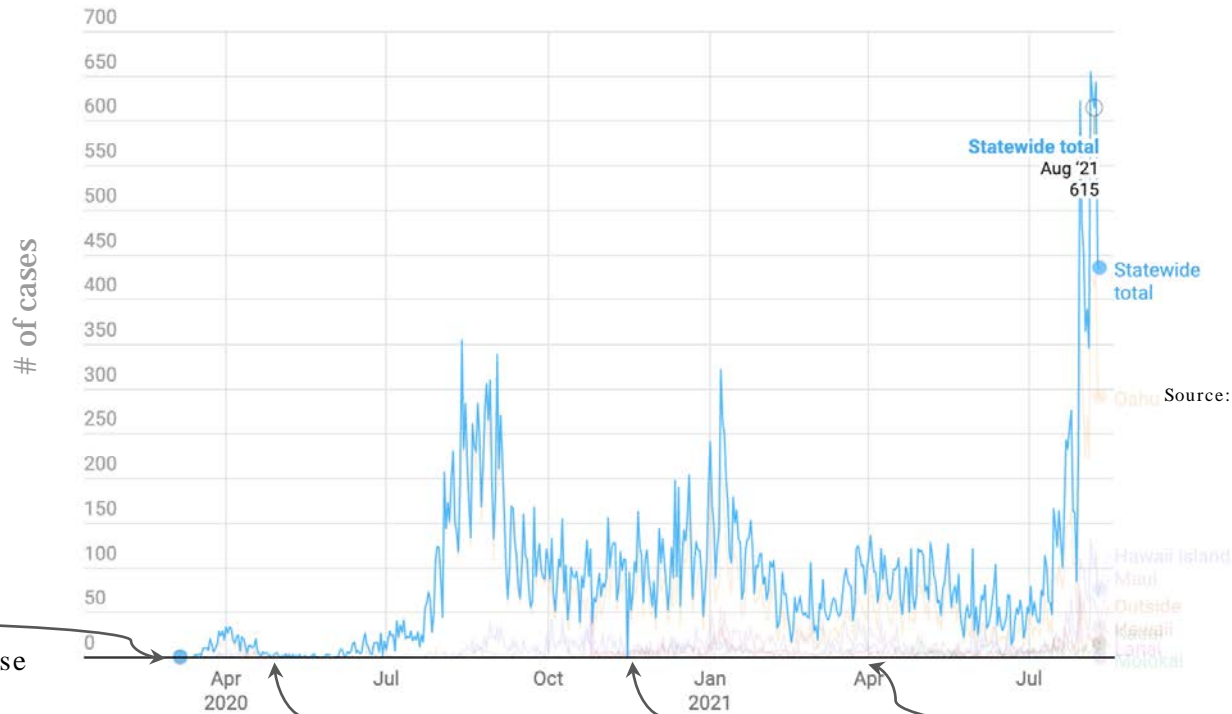
Background

- The SARS-CoV-2 viral outbreak was first announced by the Chinese government in December 2019
- WHO declared pandemic in March 2020
- Profound effect on a global scale



Photo Credit: USDA; <https://www.usda.gov/coronavirus>

Background



March 2020

- First Hawaii case of COVID-19
- Gov. Ige signs statewide shutdown order

May 2020

- Low-risk facilities and businesses start to open up

December 2020

- Vaccines become available for healthcare workers and for the kupuna

April 2021

- Vaccines become more readily available for the general public

Methods

- IRB-approved retrospective review of electronic health records and Oncology Data Registry
 - Pre-pandemic: January 1, 2019 - February 29, 2020
 - Pandemic: March 1, 2020 - December 31, 2020
 - Pandemic- Vaccine Available: January 1, 2021 - June 30, 2021
- Inclusion criteria - All adult patients (≥ 18 years of age) who underwent screening mammography or colonoscopy
- Exclusion criteria - None

Data Fields

- Name
- Medical record number
- Zip code of residence
- Age
- Gender
- Race
- AJCC stage
- Tumor histology
- Date of cancer diagnosis
- Date of first contact at the medical center for cancer care
- Cancer treatment date
- Cancer status
- Vital status
- Date of last contact
- Insurance Status
- Household income
- Education level

Longitudinal Variation in Breast and Colorectal Cancer Screening Associated with the COVID-19 Pandemic



Age at Time of Screening for Breast Cancer

Time Period	n	Mean	SD	Minimum	Maximum	Lower Quartile	Median	Upper Quartile	IQR
Pre-pandemic	22,893	58.4	11.2	29	>89	49	58	67	49 - 67
Pandemic	14,507	58.7	11.2	31	>89	50	58	67	50 - 67
Pandemic – Vaccine Available	9,113	58.7	11.4	28	>89	49	59	68	49 - 68

Age at Time of Screening for Colorectal Cancer

Time Period	n	Mean	SD	Minimum	Maximum	Lower Quartile	Median	Upper Quartile	IQR
Pre-pandemic	5,865	61.4	9.1	18	>89	54	61	68	54 - 68
Pandemic	3,092	62	9.3	19	>89	55	62	69	55 - 69
Pandemic-Vaccine Available	2,963	61.4	9.3	27	>89	53	61	69	53 - 61

Gender of Patients Screened for Colorectal Cancer

Time Period	Total Number of Patients	Female (n)	Female (%)	Male (n)	Male (%)
Pre-pandemic	5,865	3,044	51.9	2,821	48.1
Pandemic	3,092	1,549	50.1	1,543	49.9
Pandemic – Vaccine Available	2,963	1,552	52.4	1,411	47.6

Race of Patients Screened for Breast Cancer

Race	Pre-pandemic	Pre-pandemic	Pandemic	Pandemic	Pandemic – Vaccine Available	Pandemic – Vaccine Available
	n	%	n	%	n	%
American Indian or Alaska Native	42	0.18	34	0.23	27	0.30
Asian	14,498	63.33	9,385	64.69	5,822	63.89
Black or African American	199	0.87	110	0.76	73	0.80
Native Hawaiian or Other Pacific Islander	3,144	13.73	1,914	13.19	1,214	13.32
White	4,788	20.91	2,921	20.14	1,872	20.54
Not Reported	222	0.97	143	0.99	105	1.15
Total	22,893		14,507		9,113	

Race of Patients Screened for Colorectal Cancer

Race	Pre-pandemic	Pre-pandemic	Pandemic	Pandemic	Pandemic – Vaccine Available	Pandemic – Vaccine Available
	n	%	n	%	n	%
American Indian or Alaska Native	20	0.34	7	0.23	15	0.51
Asian	3,313	56.49	1,739	56.24	1,644	55.48
Black or African American	100	1.71	43	1.39	67	2.26
Native Hawaiian or Other Pacific Islander	742	12.65	397	12.84	385	12.99
White	1,600	27.28	863	27.91	800	27.00
Not Reported	90	1.53	43	1.39	52	1.75
Total	5,865		3,092		2,963	

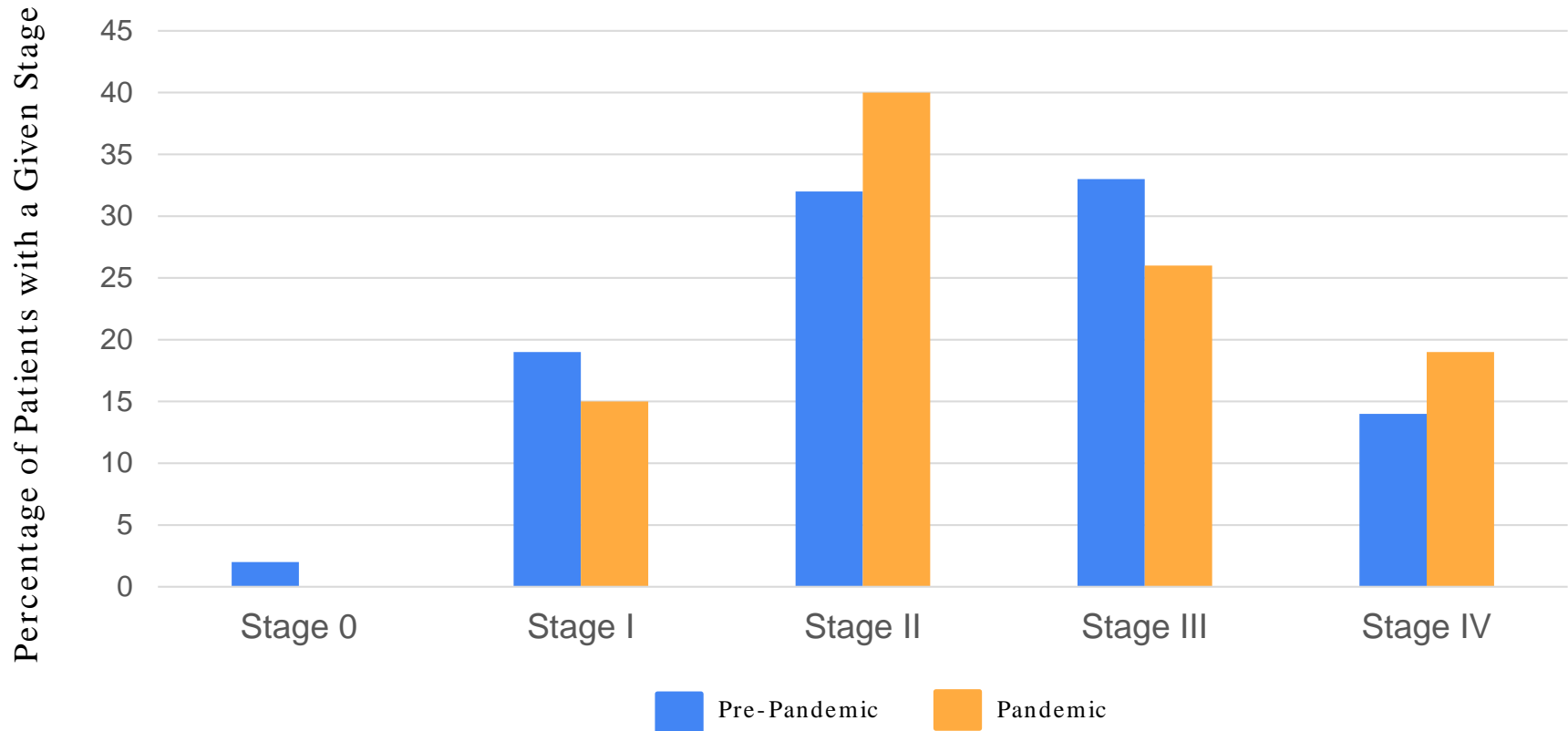
American Joint Committee on Cancer (AJCC) Clinical Stage Distribution of Colorectal Cancer Prior to and During the COVID-19 Pandemic

Clinical Stage	Pre-pandemic n (%)	Pandemic n (%)
Stage 0	3 (2%)	0 (0%)
Stage I	34 (19%)	12 (15%)
Stage II	56 (32%)	31 (40%)
Stage III	57 (33%)	20 (26%)
Stage IV	25 (14%)	15 (19%)
Total number of patients	175	78

Pre-pandemic time period – January 1, 2019 through February 29, 2020

Pandemic time period – March 1, 2020 through October 31, 2020.

American Joint Committee on Cancer (AJCC) Clinical Stage Distribution of Colorectal Cancer Patients prior to and during the COVID-19 Pandemic



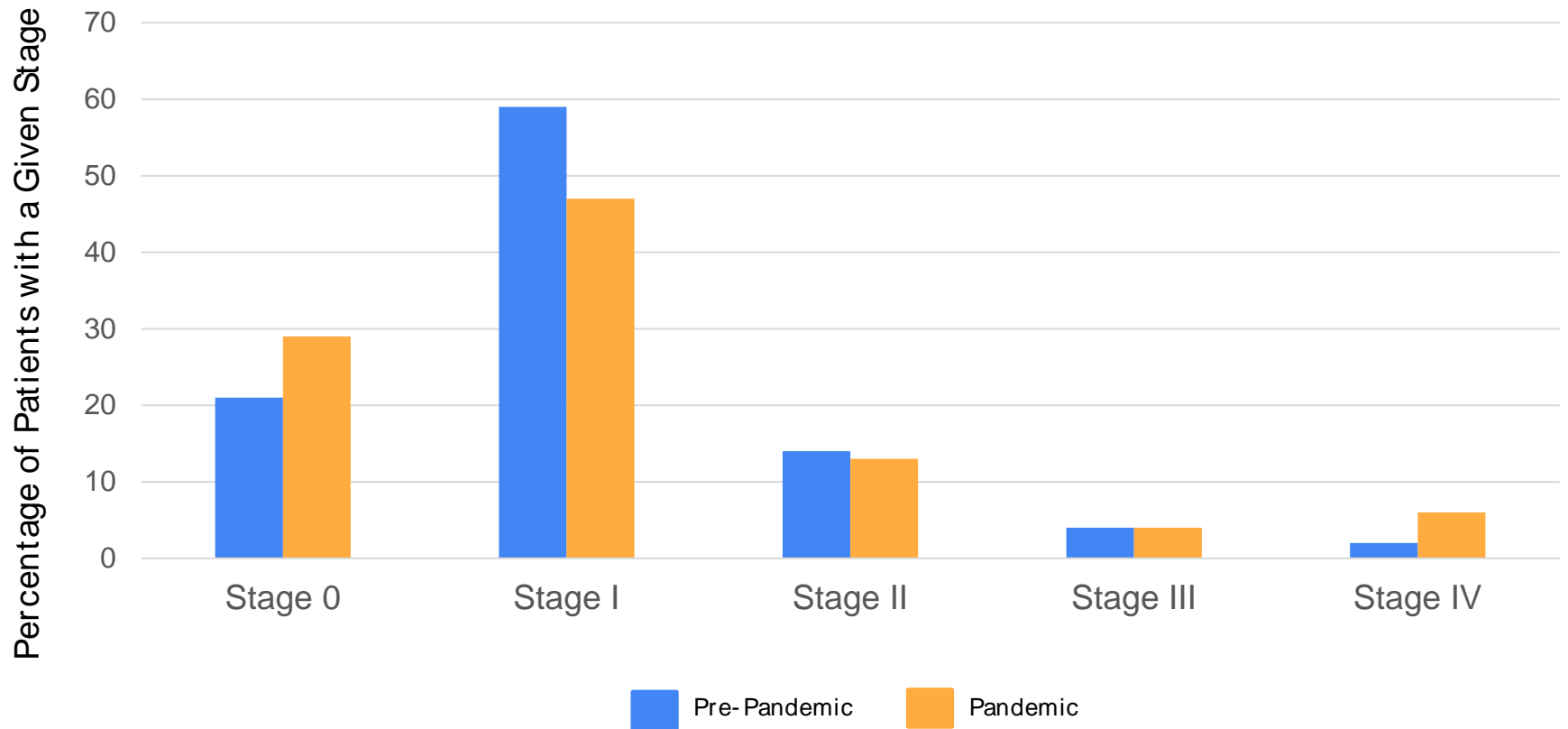
American Joint Committee on Cancer (AJCC) Clinical Stage Distribution of Breast Cancer Prior to and During the COVID-19 Pandemic

Clinical Stage	Pre-pandemic n (%)	Pandemic n (%)
Stage 0	93 (21%)	63 (29%)
Stage I	259 (59%)	101 (47%)
Stage II	61 (14%)	29 (13%)
Stage III	18 (4%)	9 (4%)
Stage IV	11 (2%)	13 (6%)
Total number of patients	442	215

Pre-pandemic time period – January 1, 2019 through February 29, 2020

Pandemic time period – March 1, 2020 through October 31, 2020.

American Joint Committee on Cancer (AJCC) Clinical Stage Distribution of Breast Cancer Patients prior to and during the COVID-19 Pandemic



Conclusions

- Screening encounters were impacted by COVID-19 pandemic
- While the initial backlog of patients were addressed, diminishing trends for both breast and colorectal cancer screening may be of potential concern if they persist
- For colorectal cancer, a trend for more stage IV cancers diagnosed during the pandemic may be of concern
- If these trends persist, more attention must be directed towards improving patient outreach

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