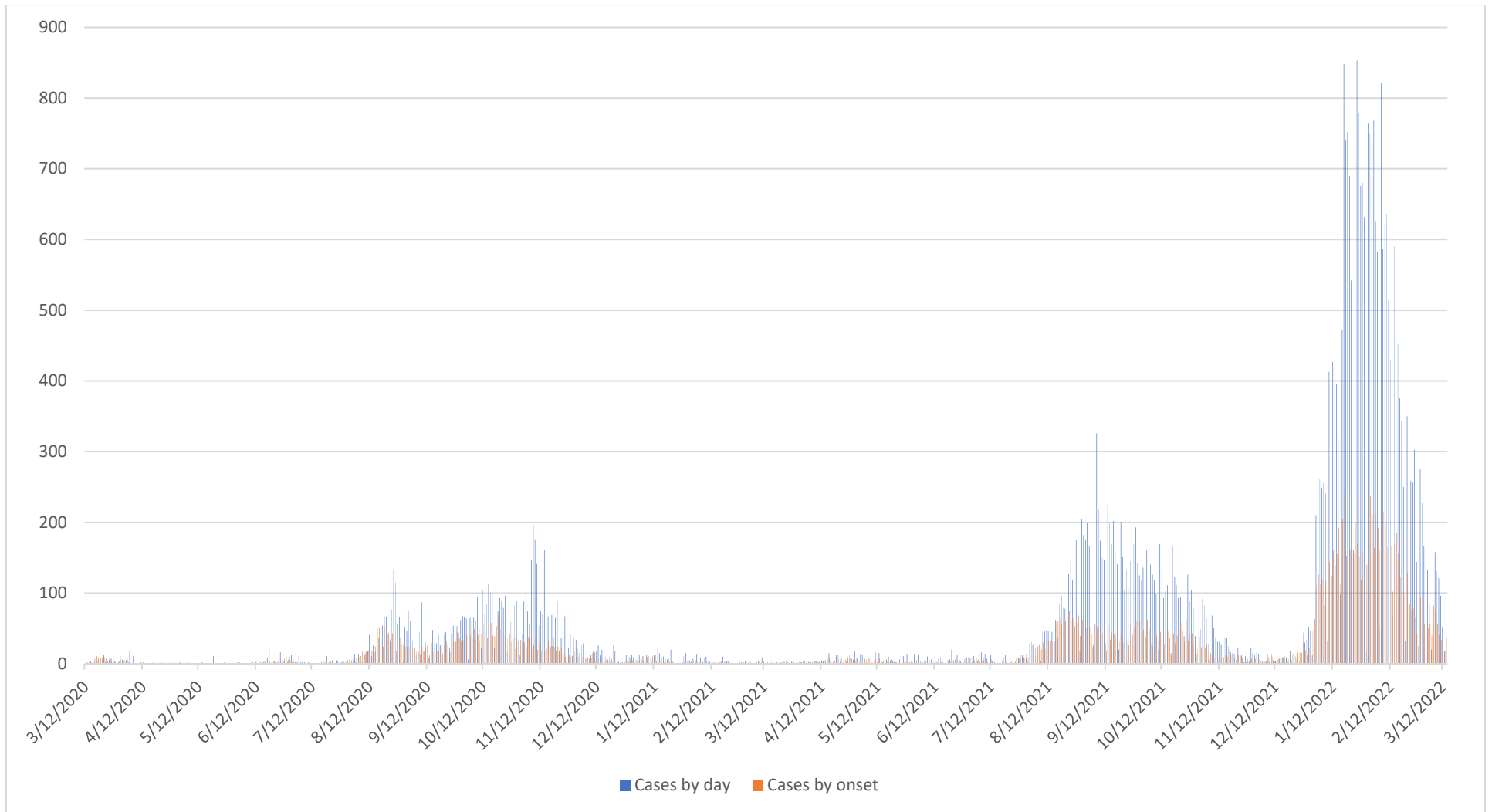**U.S. Territory of Guam**
SARS-CoV-2/COVID-19 Surveillance Summary Report
March 15, 2020 to March 14, 2022.

OFFICE OF EPIDEMIOLOGY AND RESEARCH & COVID-19 SURVEILLANCE UNIT
GUAM DEPARTMENT OF PUBLIC HEALTH AND SOCIAL SERVICES

3/29/2022

This graph depicts the entire pandemic on Guam from March 15, 2020 to March 14, 2022, with the cases by day in blue and by onset date in orange. The surges in cases reflect the Alpha surge (August-November 2020), the Delta surge (August-November 2021) and the Omicron surge January-March 2022).
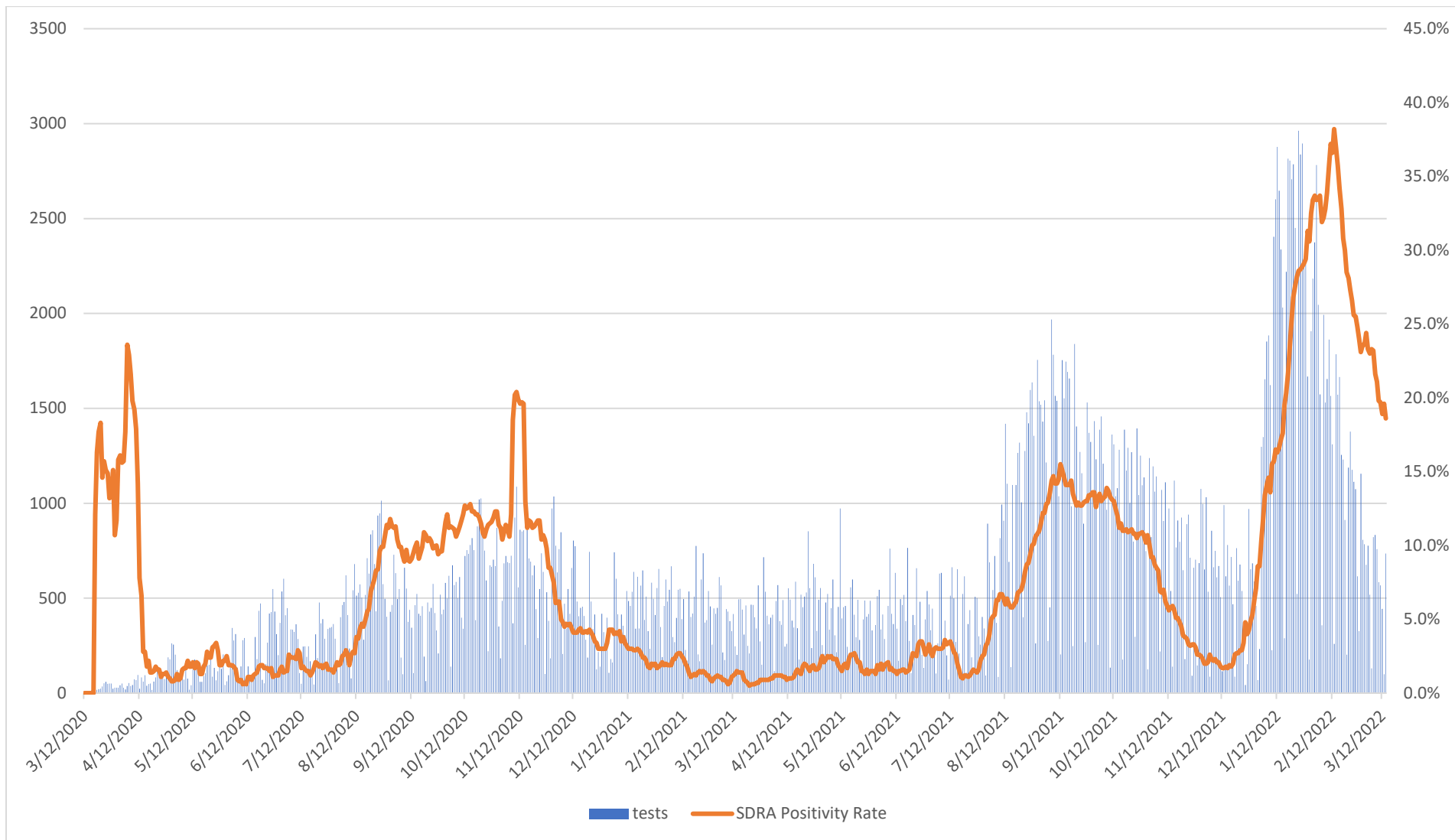
This graph depicts the number of tests conducted through the pandemic on Guam and the SDRA (Seven Day Rolling Average) positivity rate.
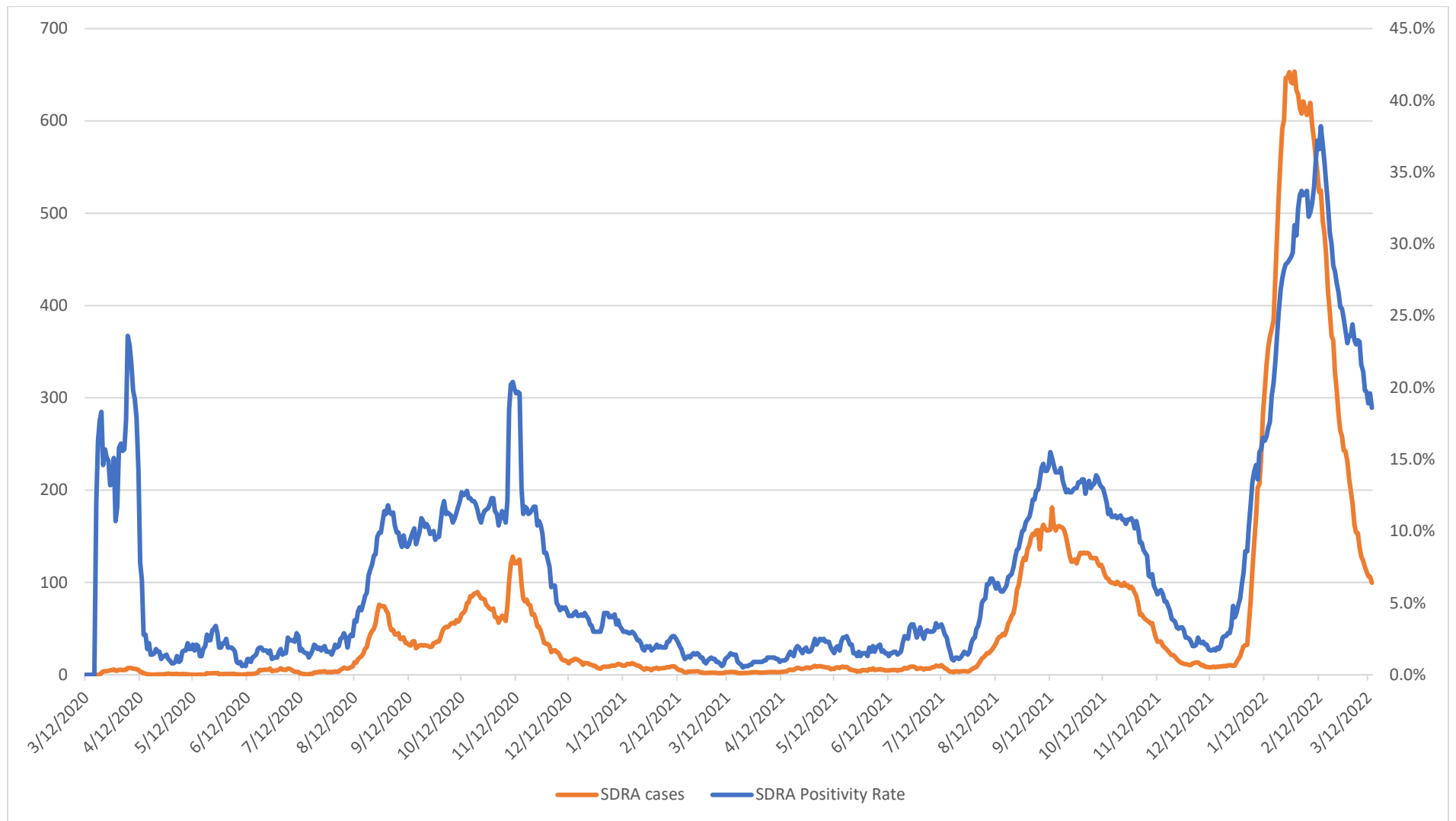
This graph depicts the SDRA of cases and positivity rate throughout the pandemic.
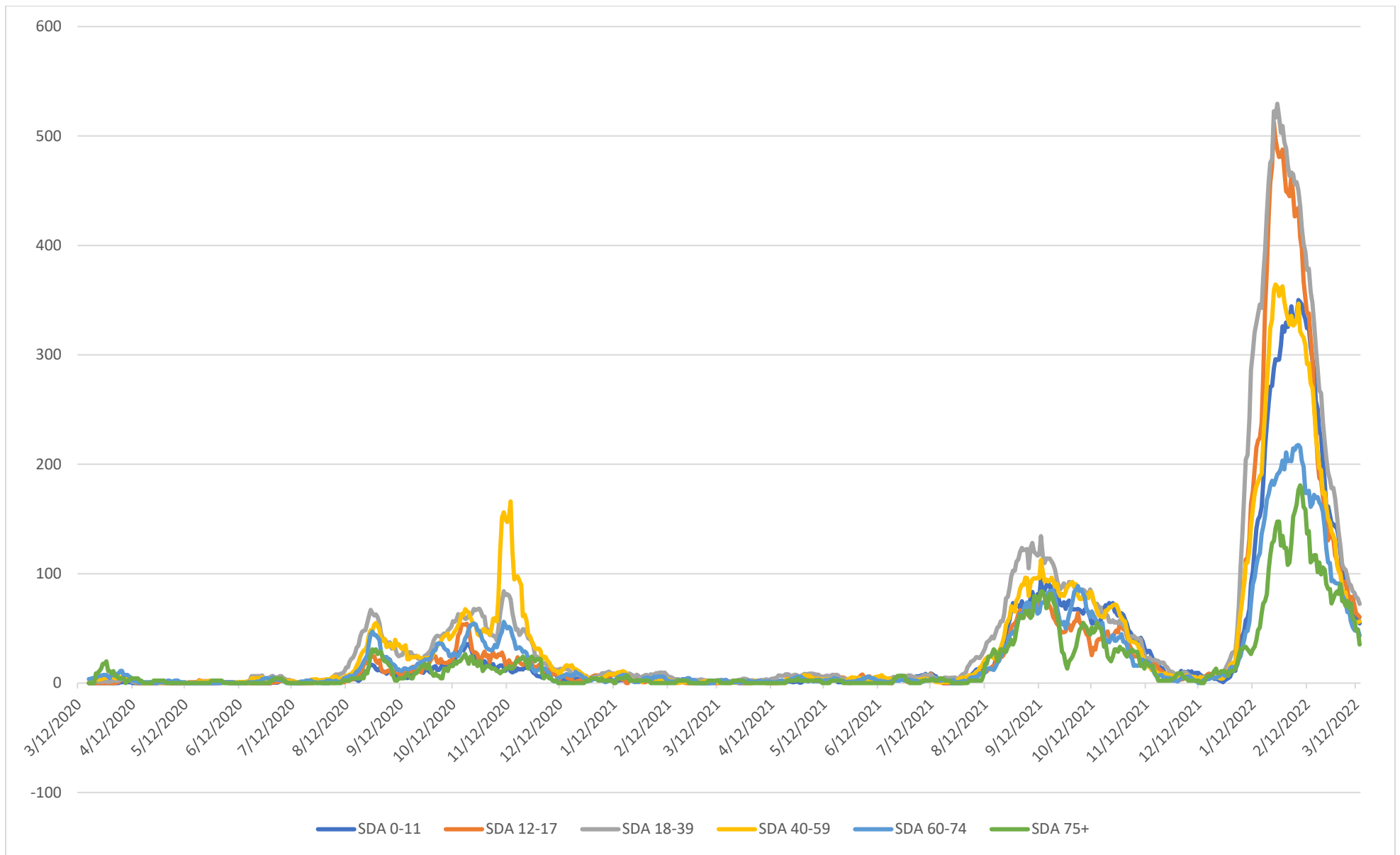
This graph depicts the 7 day average of cases by age groups through the pandemic.
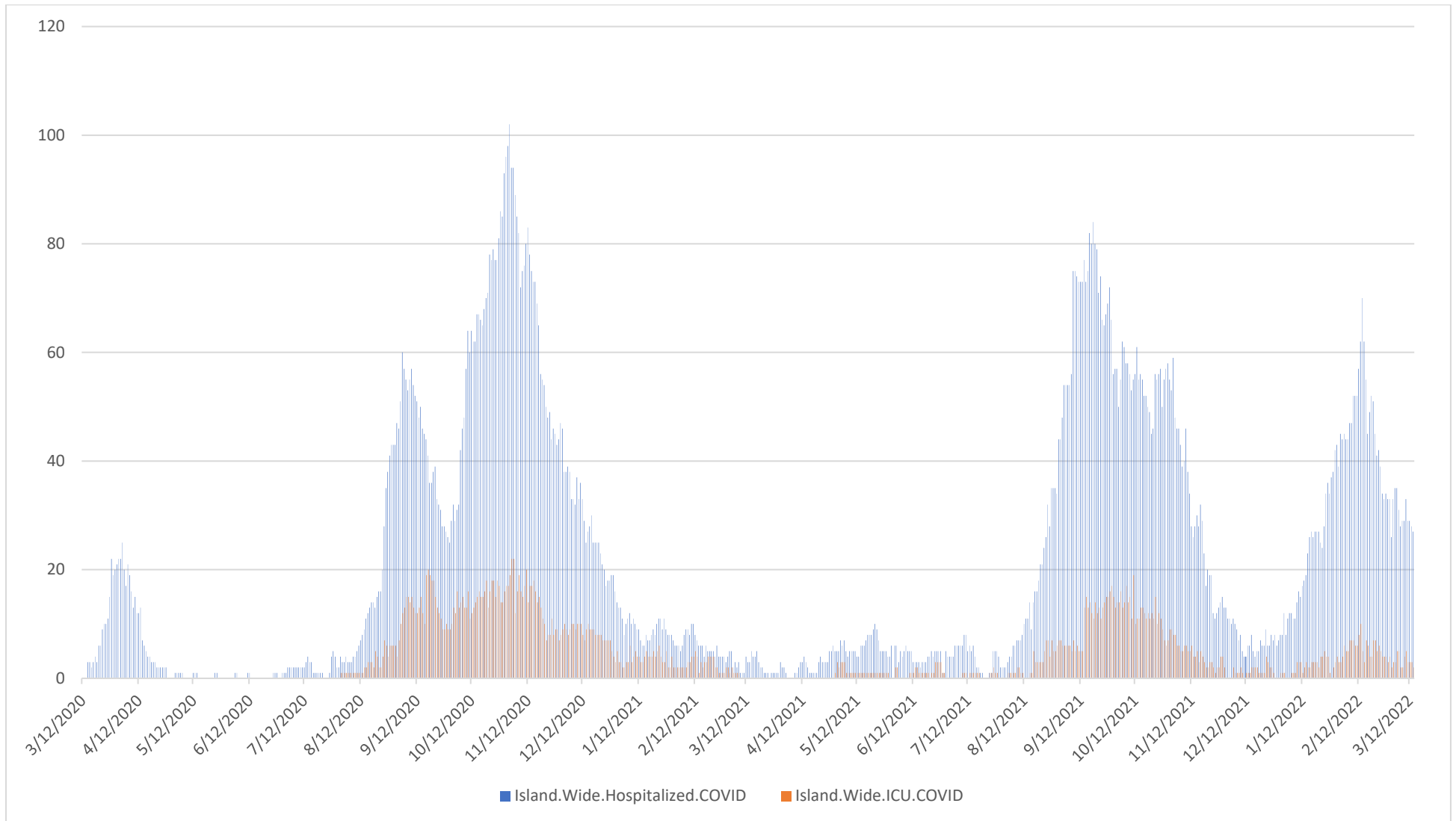
This graph depicts the island-wide hospitalized and ICU COVID-19 cases. Hospitalizations and ICU cases were highest during the first (Alpha) surge, but significant during the Delta surge, and lower during the Omicron surge.
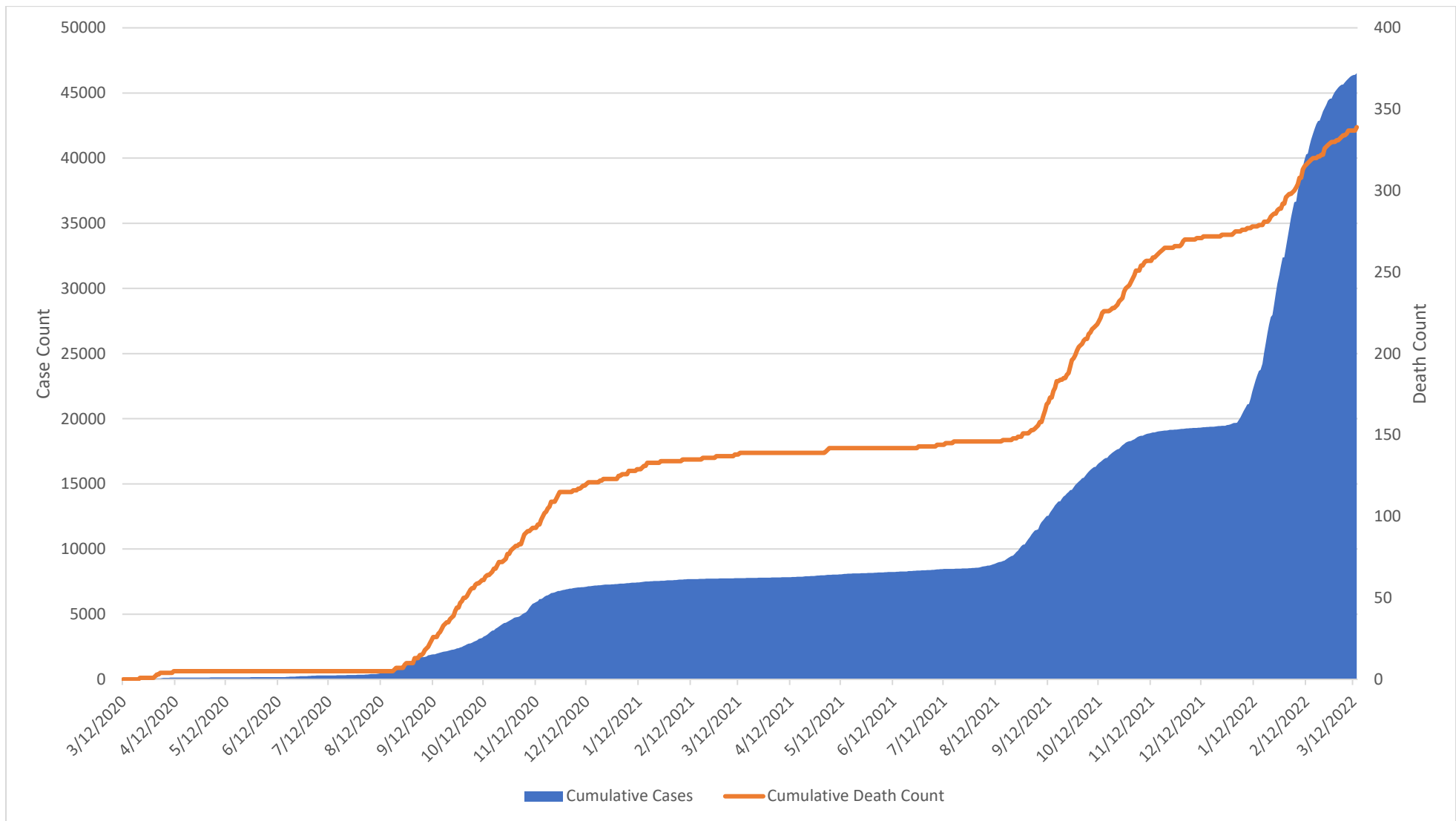
This graph depicts the cumulative number of COVID-19 cases during the pandemic and the cumulative death count.
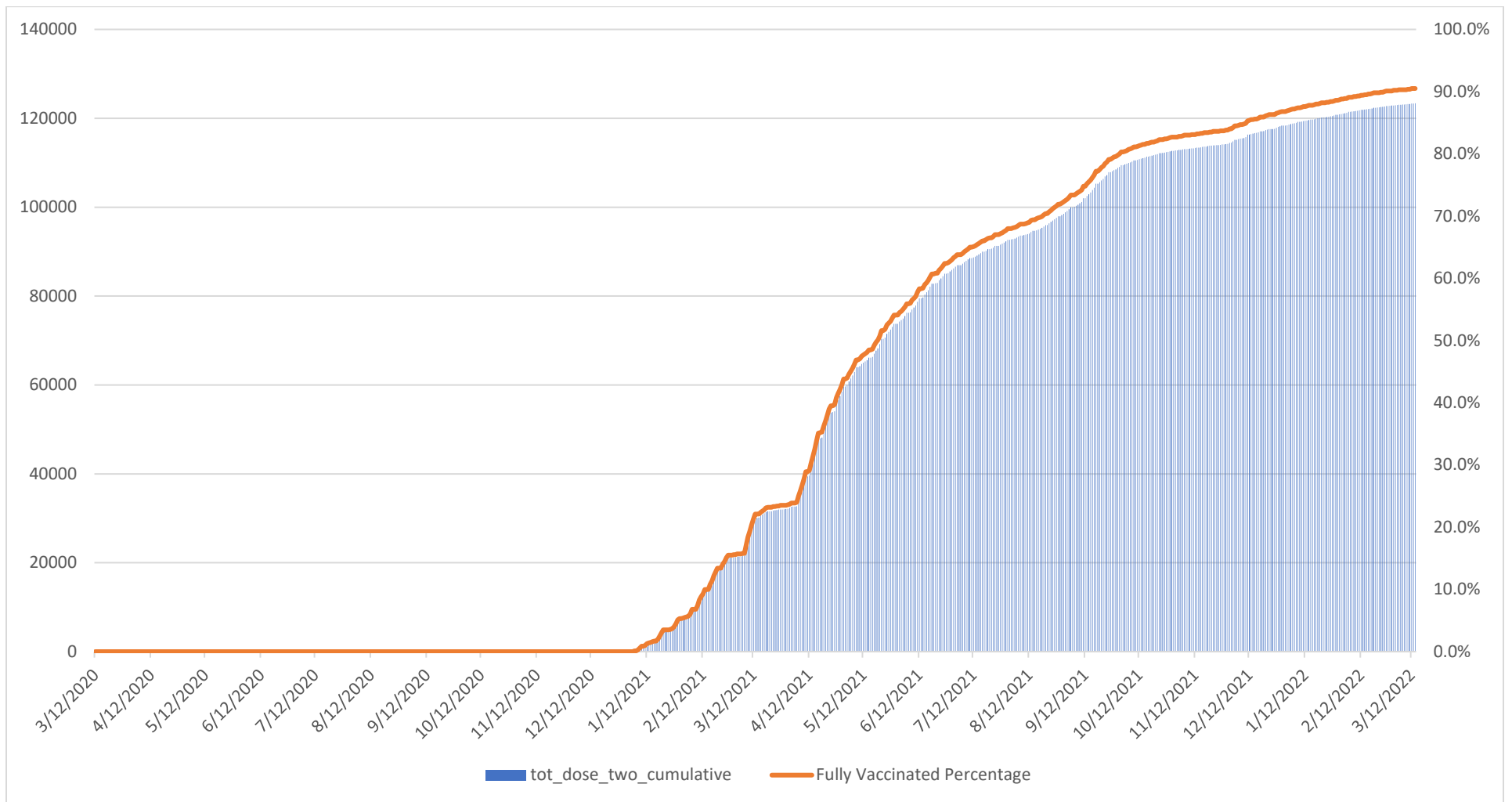
This graph depicts the cumulative numbers of two dose (fully vaccinated) in Guam's population (blue) and the proportion fully vaccinated (orange).

Sex:

There was an increase among female cases from 2020 to 2021 and 2022, with a corresponding decrease in cases among males.

The opposite trend is found among deaths, with males an increasing proportion of deaths from 2020 to 2021 and 2022.

Age:

For the entire pandemic total to date by age, cases were highest among those 18-39 years, followed by those aged 0-17 years and then those ages 40-59. Only 10% of COVID-19 cases are among those aged 60 and over, however, the majority (65%) of deaths occurred among those over 60 years of age.

Those over 80 years old have represented 18.6% of deaths to date. Among deaths there is a definitive increase in deaths in 2022 among those aged 80+ years (39.1%).

Ethnicity:

Chamorro cases show an increase from 2020 to 2021 and 2022, but the Chamorro proportion of deaths remained steady from 34-36%, proportionate to what is expected in Guam's population.

Filipinos had high numbers of cases initially which then dropped during 2021 and 2022. Filipino proportions of deaths increased to 37.5% in 2022, but this is only disproportionate to their population numbers in 2022.

Chuukese and other Pacific Islander cases decreased from 2020 to 2021 and 2022, as did their proportion of deaths. However, Chuukese have had overall disproportionately higher deaths (and DOAs) relative to their proportion in the population for the entire pandemic.

Chronic Conditions:

Chronic conditions among cases are low; only hypertension, and current/former smoking are apparent among cases during 2020 and 2021.

Among COVID-19 related deaths however, chronic conditions are readily apparent with hypertension and diabetes the most common, followed by cardiovascular disease, chronic renal or lung disease.

For example, the proportion of deaths with a diabetes diagnosis on the line list or PUI form was 48.4% in 2020, 35.1% in 2021 and 60.9% in 2022.

Overall, for the entire pandemic the proportion of deaths with any diagnosis of diabetes among deaths (MD notes, line list or death certificate) constitutes 53.3%.

Hypertension follows this same pattern with 56.3% in 2020, 33.8% in 2021 and 70.3% in 2022.

There is essentially no change in the analysis of causes of deaths for COVID-19 deaths from previous reports, except that 2022 saw higher proportions of among those who also had cancer listed on the death certificate (and on the line list).

Demographics on deaths (from death certificates):

There is a continued pattern of high proportions with high school or less education dying from COVID-19.

By occupation, laborers, homemakers, managers and food service workers also stand out as occupational risks.

By industry, construction, education, government, service/retail, homemaking, professional/management and food service also stand out.

Although the year 2022 is just starting, DOAs represent almost one-half (46.9%) of the deaths in 2022, whereas DOA's were only 36.4% of all deaths in 2021 and 18.23% of deaths in 2020. During the entire pandemic DOA's have averaged 32% of COVID-19 related deaths.

Table 1 (cases) and Table 2 (deaths) show the demographic characteristics of cases and deaths for the SARS-CoV-2/COVID-19 pandemic by year.

By sex and pandemic year, there is an increase among female cases from 2020 (41.7%) to 2021 (47.1%) and 2022 (50.2%), with a concomitant decrease in cases among males from 2020 (28.3%), however, the opposite trend is found among deaths, with males an increasing proportion of deaths from 2020 to 2022.

For the pandemic total to date by sex, there is almost an even split by sex among cases (male 52% and female 48%), while deaths are higher among males (58%) compared to females (42%).

By age and pandemic year, among cases there is an increasing proportion of children from 2020 to 2021 and then 2022 and a decreasing proportion among those aged 40-59.

Among deaths there is a definitive increase in deaths in 2022 among those aged 80+ years (39.1%), and a decrease among those aged 40-59 in 2022 compared to 2020 and 2021.

For the entire pandemic total to date by age, cases were highest among those 18-39 years, followed by those aged 0-17 years and then those ages 40-59. Only 10% of COVID-19 cases are among those aged 60 and over, however, the majority of deaths occurred among those over 60 years of age (65%).

In addition, Guam's population over 80 years old was estimated to be 2.2% of the population in 2020 (Guam Statistical Yearbook, 2019), but those over 80 years old have represented 18.6% of deaths to date.

By ethnicity and pandemic year, Chamorro cases show an increase from 2020 (26.9%) to 2021 (39.2%) and 2022 (36.5%), but the Chamorro proportion of deaths remained steady from 34-36%.

Filipinos had high numbers of cases initially (27.8%) which then dropped to 21.8% during 2021 and 19.9% in 2022. Filipino proportions of deaths started at 27% in 2020, decreased to 25% in 2021 and increased to 37.5% in 2022.

Chuukese and other Pacific Islander cases decreased from 2020 to 2021 and 2022, as did their proportion of deaths. However, Chuukese have represented disproportionately higher deaths than their proportion in the population. The proportions of people of unknown ethnicity increased in 2022.

For the entire pandemic total to date by ethnicity, Chamorros represent 35.6% of cases and 35.3% of deaths, and this is slightly less than their estimated proportion in Guam's population (Table 3).

Filipinos represent 21.6% of cases and 28.1% of deaths, with their cases less than what we would expect given their proportion in the population, and deaths (28.1%) similar to what we would expect, except for their higher proportions in 2022 as noted above.

Chuukese are disproportionately represented among COVID-19 deaths (22.2%) given their estimated proportion in Guam's population (7.8%). Chuukese also represent higher proportions of those DOA (data not shown here, but available upon request).

It is important to note that ethnicity comparisons are based on projected estimates, since the Guam 2020 Census detailed tabulations have not yet become available.

For the entire pandemic total to date, by chronic conditions (Table 4), the proportion of cases with chronic conditions is low, and this reflects the younger population among COVID-19 cases, who tend to not (yet) have chronic conditions.

Hypertension, and current or former smoking are the only chronic conditions that are apparent among cases, but at proportions that are lower than estimates for Guam's overall population based on the CDC Behavioral Risk Factor Surveillance Survey.

Among COVID-19 related deaths, chronic conditions are readily apparent with hypertension (49.1%) and diabetes (45%) the most common, followed by cardiovascular disease (24.2%), and chronic renal (15.1%) or lung disease (8.9%). Overall, for the entire pandemic the proportion of deaths with any diagnosis of diabetes among deaths (MD notes, line list or death certificate) constitutes 53.3% (Table 15).

Regarding additional demographic indicators for COVID-19 related deaths, there is a continued pattern of high proportions with high school or less education dying from COVID-19.

By occupation, laborers, homemakers, managers and food service workers stand out as occupational risks among deaths.

By industry, construction, education, government, service/retail, homemaking, professional/management and food service also stand out among deaths.

The majority of the COVID-19 related deaths (Table 13) occurred in 2021 (43.8%), with 37.3% in 2020 and 18.9% in 2022, through March 14th. There were more DOAs in 2021 (50.5%), followed by 2022 (28%) with 21.5 % in 2020.

Table 1

March 15, 2020-March 14, 2022 BY YEAR								
DEMOGRAPHICS-COVID-19 CASES	**2020**		**2021**		**2022**		**TOTAL**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Sex								
female	2999	41.7	5740	47.1	13588	50.2	22327	48.0
male	4200	58.3	6452	52.9	13490	49.8	24142	52.0
total	7199	100.0	12192	100.0	27078	100.0	46469	100.0
Age	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
0-17	969	13.5	3008	24.7	7442	27.5	11419	24.6
18-39	3061	42.5	4988	40.9	11533	42.6	19582	42.1
40-59	2421	33.6	2920	24.0	5912	21.8	11253	24.2
60-79	697	9.7	1135	9.3	2000	7.4	3832	8.2
80+	51	0.7	141	1.2	191	0.7	383	0.8
total	7199	100.0	12192	100.0	27078	100.0	46469	100.0
Ethnicity	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Chamorro	1936	26.9	4783	39.2	9827	36.3	16546	35.6
Chuukese	980	13.6	627	5.1	710	2.6	2317	5.0
Other Pac Islander	832	11.6	1360	11.2	1476	5.5	3668	7.9
Filipino	1999	27.8	2654	21.8	5399	19.9	10052	21.6
Other Asian	89	1.2	280	2.3	524	1.9	893	1.9
White	50	0.7	34	0.3	110	0.4	194	0.4
Black	8	0.1	47	0.4	13	0.0	68	0.1
Unknown	560	7.8	922	7.6	5160	19.1	6642	14.3
Other	745	10.3	1485	12.2	3859	14.3	6089	13.1
total	7199	100.0	12192	100.0	27078	100.0	46469	100.0
Village	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Central	1873	26.0	3115	25.5	6571	24.3	11559	24.9
North	4129	57.4	6118	50.2	11664	43.1	21911	47.2
South	851	11.8	2100	17.2	4290	15.8	7241	15.6
Off-Island	73	1.0	240	2.0	1548	5.7	1861	4.0
Homeless	4	0.1	2	0.0	3	0.0	9	0.0
Unknown	269	3.7	617	5.1	3002	11.1	3888	8.4
total	7199	100.0	12192	100.0	27078	100.0	46469	100.0

DEMOGRAPHICS-COVID-19 DEATHS	2020		2021		2022		TOTAL	
	n	%	n	%	n	%	n	%
Sex								
female	55	43.7%	61	41.2%	25	39.1%	141	41.7%
male	71	56.3%	87	58.8%	39	60.9%	197	58.3%
total	126	100.0%	148	100.0%	64	100.0%	338	100.0%
Age								
0-17	1	0.8%	3	2.0%	2	3.1%	6	1.8%
18-39	7	5.6%	12	8.1%	2	3.1%	21	6.2%
40-59	43	34.1%	40	27.0%	8	12.5%	91	26.9%
60-79	60	47.6%	70	47.3%	27	42.2%	157	46.4%
80+	15	11.9%	23	15.5%	25	39.1%	64	18.9%
total	126	100.0%	148	100.0%	64	100.0%	338	100.3%
Ethnicity								
Chamorro	46	36.5%	51	34.5%	22	34.4%	119	35.2%
Chuukese	34	27.0%	33	22.3%	8	12.5%	75	22.2%
Other Pac Islander	8	6.3%	17	11.5%	2	3.1%	27	8.0%
Filipino	34	27.0%	37	25.0%	24	37.5%	95	28.1%
Other Asian	1	0.8%	3	2.0%	1	1.6%	5	1.5%
white	1	0.8%	3	2.0%	4	6.3%	8	2.4%
black	1	0.8%	2	1.4%	0	0.0%	3	0.9%
unknown	1	0.8%	2	1.4%	3	4.7%	6	1.8%
total	126	100.0%	148	100.0%	64		338	
Village								
Central	36	28.6%	36	24.3%	15	23.4%	87	25.7%
North	72	57.1%	86	58.1%	36	56.3%	194	57.4%
South	15	11.9%	21	14.2%	7	10.9%	43	12.7%
Off-Island	1	0.8%	1	0.7%	1	1.6%	3	0.9%
Homeless	0	0.0%	0	0.0%	2	3.1%	2	0.6%
Unknown	2	1.6%	4	2.7%	3	4.7%	9	2.7%
total	126	100.0%	148	100.0%	64	100.0%	338	100.0%

Table 2

March 15, 2020-March 14, 2022 BY YEAR

Table 3								
March 15, 2020-March 14, 2022						(A)	(B)	(C)
COVID-19 positive cases and deaths by known ethnicity	**# Cases (not deceased)**	**% (not deceased)**	**# deceased**	**% deceased**	**Guam 2020 projected population* (n=168,322)**	**% as a proportion of one and two or more ethnic groups (N=168,322)**	**% as a proportion of one ethnic group (N=152,553)**	**(C) = average of (A) and (B)**
ONE ETHNIC GROUP								
Chamorro	16,546	35.7	119	35.2	62,721	37.3	41.1	39.2
Chuukese	2,317	5.0	75	22.2	11,862	7.0	7.8	7.4
Pohnpeian	623	1.3	8	2.4	2,374	1.4	1.6	1.5
Palauan	608	1.3	7	2.1	2,707	1.6	1.8	1.7
Yapese	532	1.1	6	1.8	1,334	0.8	0.9	0.8
Kosraean	123	0.3	2	0.6	449	0.3	0.3	0.3
Marshallese	90	0.2	2	0.6	333	0.2	0.2	0.2
Other Pacific Islander: unspecified	1,692	3.7	2	0.6	1,222	0.7	0.8	0.8
Asian-Filipino	10,052	21.7	95	28.1	44,303	26.3	29.0	27.7
Asian-Other**	893	1.9	5	1.5	9,968	5.9	6.5	6.2
European/White	194	0.4	8	2.4	11,958	7.1	7.8	7.5
All Others	6,037	13.0	3	0.9	3,322	2.0	2.2	2.1
Unknown (or blank)	6,642	14.3	6	1.8	0	NA	0.0	0.0
TWO OR MORE ETHNIC GROUPS	N/A	N/A	N/A	N/A	15,769	9.4	NA	9.4
GRAND TOTAL	**46,349**	**100.0**	**338**	**100.0**	**168,322**	**100.0**	**100.0**	**100.0**
denominator used	**46,349**	**46,349**	**338**	**338**	**168,322**	**168,322**	**152,533**	**NA**
* Tables 23-04 and 23-09, Guam Statistical Yearl								
** Includes Japanese, Korean, Asian Indian and others.								
Note-population by ethnicity not yet available from 2020 Guam Census								

Table 4								
March 15, 2020-March 14, 2022 BY YEAR								
LINE LIST DATA FROM PUI FORM	2020		2021		2022		TOTAL	
CASES	n	%	n	%	n	%	n	%
diabetes	598	8.3	707	5.8	439	1.6	1,744	3.8
obesity/severe obesity	223	3.1	24	0.2	1	0.0	248	0.5
hypertension	783	10.9	1,104	9.1	737	2.7	2,624	5.6
cardiovascular disease	200	2.8	202	1.7	116	0.4	518	1.1
chronic renal disease	66	0.9	96	0.8	53	0.2	215	0.5
chronic liver disease	20	0.3	25	0.2	18	0.1	63	0.1
chronic lung disease	276	3.8	402	3.3	334	1.2	1,012	2.2
other chronic conditions	35	0.5	60	0.5	55	0.2	150	0.3
current SMOKING	651	9.0	974	8.0	591	2.2	2,216	4.8
former smoking	595	8.3	620	5.1	370	1.4	1,585	3.4
denominator used	7,199	NA	12,190	NA	27,080	NA	46,469	NA
DEATHS								
diabetes	61	48.4	52	35.1	39	60.9	152	45.0
obesity/severe obesity	8	6.3	14	9.5	3	4.7	25	7.4
hypertension	71	56.3	50	33.8	45	70.3	166	49.1
cardiovascular disease	35	27.8	28	18.9	19	29.7	82	24.3
chronic renal disease	23	18.3	13	8.8	15	23.4	51	15.1
chronic liver disease	3	2.4	4	2.7	2	3.1	9	2.7
chronic lung disease	11	8.7	14	9.5	5	7.8	30	8.9
other chronic conditions	27	21.4	15	10.1	23	35.9	65	19.2
current SMOKING	2	1.6	8	5.4	5	7.8	15	4.4
former smoking	3	2.4	2	1.4	3	4.7	8	2.4
denominator used	126	NA	148	NA	64	NA	338	NA

Table 5								
DEMOGRAPHICS- COVID-19 DEATHS	2020		2021		2022		TOTAL	
CONTINUED	n	%	n	%	n	%	n	%
Education from death certificate								
8th Grade or Less	8	6.3%	21	14.2%	10	15.6%	39	11.5%
Some high school	8	6.3%	20	13.5%	4	6.3%	32	9.5%
High School Graduat	39	31.0%	46	31.1%	13	20.3%	98	29.0%
Some college	18	14.3%	19	12.8%	7	10.9%	44	13.0%
Associates Degree	0	0.0%	3	2.0%	5	7.8%	8	2.4%
Bachelor's Degree	9	7.1%	10	6.8%	6	9.4%	25	7.4%
Graduate Degree	3	2.4%	2	1.4%	3	4.7%	8	2.4%
unknown	41	32.5%	27	18.2%	16	25.0%	84	24.9%
total	126	100.0%	148	100.0%	64	100.0%	338	100.0%

Table 6								
DEMOGRAPHICS-COVID-19 DEATHS	2020		2021		2022		TOTAL	
CONTINUED	n	%	n	%	n	%	n	%
Occupation from death certificate								
Unemployed	1	0.8%	8	5.4%	2	3.1%	11	3.3%
Under 18/ Student	1	0.8%	3	2.0%	0	0.0%	4	1.2%
Teacher/ School Aide	5	4.0%	4	2.7%	4	6.3%	13	3.8%
Laborer	13	10.3%	20	13.5%	6	9.4%	39	11.5%
Homemaker	11	8.7%	18	12.2%	6	9.4%	35	10.4%
Agriculture worker/ Farmer/ Fisher	0	0.0%	3	2.0%	1	1.6%	4	1.2%
Finance Worker	4	3.2%	1	0.7%	1	1.6%	6	1.8%
Management/ Admin	10	7.9%	13	8.8%	7	10.9%	30	8.9%
First Responder/ Security/ DOC	5	4.0%	5	3.4%	4	6.3%	14	4.1%
Doctor/ Nurse/ Healthcare Wkrs	2	1.6%	2	1.4%	1	1.6%	5	1.5%
Maintenance	4	3.2%	4	2.7%	4	6.3%	12	3.6%
Military	4	3.2%	0	0.0%	1	1.6%	5	1.5%
Religious Leader/ Church Wkrs	4	3.2%	4	2.7%	1	1.6%	9	2.7%
Housekeeping/ Janitorial	3	2.4%	4	2.7%	1	1.6%	8	2.4%
Food Services	10	7.9%	9	6.1%	5	7.8%	24	7.1%
Transportation	3	2.4%	0	0.0%	1	1.6%	4	1.2%
Customer Service	7	5.6%	4	2.7%	0	0.0%	11	3.3%
Professional Services	10	7.9%	5	3.4%	2	3.1%	17	5.0%
Unknown	29	23.0%	41	27.7%	17	26.6%	87	25.7%
total	126	100.0%	148	100.0%	64	100.0%	338	100.0%

Table 7								
DEMOGRAPHICS- COVID-19 DEATHS	2020		2021		2022		TOTAL	
CONTINUED	n	%	n	%	n	%	n	%
Industry from death certificate								
Construction	12	9.5%	12	8.1%	4	6.3%	28	8.3%
Education	8	6.3%	5	3.4%	5	7.8%	18	5.3%
Government (non-military)	12	9.5%	18	12.2%	9	14.1%	39	11.5%
Retail/Service	17	13.5%	7	4.7%	6	9.4%	30	8.9%
Homemaker	11	8.7%	18	12.2%	6	9.4%	35	10.4%
Military	4	3.2%	0	0.0%	1	1.6%	5	1.5%
Agriculture	0	0.0%	3	2.0%	1	1.6%	4	1.2%
Professional/Management Services	12	9.5%	13	8.8%	3	4.7%	28	8.3%
Healthcare	3	2.4%	4	2.7%	1	1.6%	8	2.4%
Food Service	8	6.3%	6	4.1%	4	6.3%	18	5.3%
Religious	4	3.2%	4	2.7%	1	1.6%	9	2.7%
Unemployed	1	0.8%	7	4.7%	2	3.1%	10	3.0%
Under 18/Student	1	0.8%	3	2.0%	0	0.0%	4	1.2%
Tourism	4	3.2%	5	3.4%	4	6.3%	13	3.8%
Unknown	29	23.0%	43	29.1%	17	26.6%	89	26.3%
total	126	100.0%	148	100.0%	64	100.0%	338	100.0%

Table 8								
March 15, 2020-March 14, 2022 BY YEAR	**2020**		**2021**		**2022**		**TOTAL**	
IMMEDIATE CAUSE OF DEATH FROM DEATH CERTIFICATES	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	83	65.9	53	35.8	32	50.0	168	49.7
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	17	13.5	16	10.8	8	12.5	41	12.1
Hypertension	0	0.0	2	1.4	2	3.1	4	1.2
COVID-19 infection; Complications of COVID-10 infection	11	8.7	59	39.9	6	9.4	76	22.5
Diabetes mellitus (or complications)	1	0.8	1	0.7	0	0.0	2	0.6
Critical bleeding conditions	1	0.8	1	0.7	0	0.0	2	0.6
Renal (kidney conditions), including ESRD	2	1.6	2	1.4	1	1.6	5	1.5
Multi-organ failure	4	3.2	0	0.0	2	3.1	6	1.8
Sepsis	2	1.6	5	3.4	2	3.1	9	2.7
Infections [e.g. bacteremia]	0	0.0	0	0.0	0	0.0	0	0.0
Morbid obesity	0	0.0	0	0.0	0	0.0	0	0.0
Tobacco/ Drug Use	0	0.0	0	0.0	0	0.0	0	0.0
Cancer	1	0.8	3	2.0	1	1.6	5	1.5
Dementia	0	0.0	0	0.0	0	0.0	0	0.0
Chronic lung disease [e.g. COPD, asthma]	0	0.0	2	1.4	0	0.0	3	0.9
Other	1	0.8	1	0.7	5	7.8	9	2.7
DENOMINATOR USED	126	NA	148	NA	64	NA	338	NA

Table 9								
March 15, 2020-March 14, 2022 BY YEAR	2020		2021		2022		TOTAL	
ADDITIONAL CAUSE OF DEATH FROM DEATH CERTIFICATES	n	%	n	%	n	%	n	%
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	19	15.1	20	13.5	7	10.9	46	13.6
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	5	4.0	6	4.1	0	0.0	11	3.3
Hypertension	0	0.0	1	0.7	0	0.0	1	0.3
COVID-19 infection; Complications of COVID-10 infection	3	2.4	2	1.4	2	3.1	7	2.1
Diabetes mellitus (or complications)	2	1.6	2	1.4	0	0.0	4	1.2
Critical bleeding conditions	0	0.0	0	0.0	1	1.6	1	0.3
Renal (kidney conditions), including ESRD	6	4.8	3	2.0	0	0.0	9	2.7
Multi-organ failure	2	1.6	0	0.0	0	0.0	2	0.6
Sepsis	3	2.4	3	2.0	3	4.7	9	2.7
Infections [e.g. bacteremia]	0	0.0	0	0.0	0	0.0	0	0.0
Morbid obesity	0	0.0	0	0.0	0	0.0	0	0.0
Tobacco/ Drug Use	0	0.0	0	0.0	0	0.0	0	0.0
Cancer	0	0.0	0	0.0	2	3.1	1	0.3
Dementia	0	0.0	0	0.0	0	0.0	0	0.0
Chronic lung disease [e.g. COPD, asthma]	0	0.0	0	0.0	0	0.0	0	0.0
Other	2	1.6	0	0.0	4	6.3	6	1.8
DENOMINATOR USED	126		148		64		338	

Table 10								
March 15, 2020-March 14, 2022 BY YEAR	**2020**		**2021**		**2022**		**TOTAL**	
UNDERLYIING CAUSE OF DEATH FROM DEATH CERTIFICATES	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	28	22.2	37	25.0	8	12.5	73	21.6
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	7	5.6	6	4.1	0	0.0	13	3.8
Hypertension	1	0.8	1	0.7	0	0.0	2	0.6
COVID-19 infection; Complications of COVID-10 infection	26	20.6	15	10.1	28	43.8	69	20.4
Diabetes mellitus (or complications)	3	2.4	1	0.7	0	0.0	4	1.2
Critical bleeding conditions	1	0.8	3	2.0	0	0.0	4	1.2
Renal (kidney conditions), including ESRD	1	0.8	3	2.0	2	3.1	6	1.8
Multi-organ failure	1	0.8	3	2.0	0	0.0	4	1.2
Sepsis	4	3.2	1	0.7	3	4.7	8	2.4
Infections [e.g. bacteremia]	1	0.8	0	0.0	1	1.6	2	0.6
Morbid obesity	0	0.0	0	0.0	0	0.0	0	0.0
Tobacco/ Drug Use	0	0.0	0	0.0	0	0.0	0	0.0
Cancer	1	0.8	2	1.4	0	0.0	3	0.9
Dementia	0	0.0	0	0.0	0	0.0	0	0.0
Chronic lung disease [e.g. COPD, asthma]	0	0.0	0	0.0	0	0.0	0	0.0
Other	2	1.6	0	0.0	1	1.6	3	0.9
denominator used	126	NA	148	NA	64	NA	338	NA

Table 11								
March 15, 2020-March 14, 2022 BY YEAR	2020		2021		2022		TOTAL	
CONTRIBUTORY CAUSE OF DEATH FROM DEATH CERTIFICATES	n	%	n	%	n	%	n	%
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	8	6.3	5	3.4	6	9.4	19	5.6
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	30	23.8	26	17.6	10	15.6	66	19.5
Hypertension	33	26.2	38	25.7	19	29.7	90	26.6
COVID-19 infection; Complications of COVID-10 infection	10	7.9	18	12.2	6	9.4	34	10.1
Diabetes mellitus (or complications)	35	27.8	41	27.7	19	29.7	95	28.1
Critical bleeding conditions	2	1.6	2	1.4	0	0.0	4	1.2
Renal (kidney conditions), including ESRD	18	14.3	18	12.2	12	18.8	48	14.2
Multi-organ failure	0	0.0	0	0.0	0	0.0	0	0.0
Sepsis	4	3.2	2	1.4	2	3.1	8	2.4
Infections [e.g. bacteremia]	6	4.8	5	3.4	0	0.0	11	3.3
Morbid obesity	15	11.9	12	8.1	3	4.7	30	8.9
Tobacco/ Drug Use	1	0.8	5	3.4	2	3.1	8	2.4
Cancer	4	3.2	4	2.7	6	9.4	14	4.1
Dementia	3	2.4	3	2.0	3	4.7	9	2.7
Chronic lung disease [e.g. COPD, asthma]	1	0.8	10	6.8	3	4.7	14	4.1
Other	15	11.9	24	16.2	13	20.3	52	15.4
DENOMINATOR USED	126	NA	148	NA	64	NA	338	NA

Table 12										
March 15, 2020-March 14, 2022	**Immediate**		**Additional**		**Underlying**		**Contributory**		**Totals**	
IMMEDIATE CAUSE OF DEATH FROM DEATH CERTIFICATES	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	168	49.7	46	13.6	73	21.6	19	5.6	306	90.5
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	41	12.1	11	3.3	13	3.8	66	19.5	131	38.8
Hypertension	4	1.2	1	0.3	2	0.6	90	26.6	97	28.7
COVID-19 infection; Complications of COVID-10 infection	76	22.5	7	2.1	69	20.4	34	10.1	186	55.0
Diabetes mellitus (or complications)	2	0.6	4	1.2	4	1.2	95	28.1	105	31.1
Critical bleeding conditions	2	0.6	1	0.3	4	1.2	4	1.2	11	3.3
Renal (kidney conditions), including ESRD	5	1.5	9	2.7	6	1.8	48	14.2	68	20.1
Multi-organ failure	6	1.8	2	0.6	4	1.2	0	0.0	12	3.6
Sepsis	9	2.7	9	2.7	8	2.4	8	2.4	34	10.1
Infections [e.g. bacteremia]	0	0.0	0	0.0	2	0.6	11	3.3	13	3.8
Morbid obesity	0	0.0	0	0.0	0	0.0	30	8.9	30	8.9
Tobacco/ Drug Use	0	0.0	0	0.0	0	0.0	8	2.4	8	2.4
Cancer	5	1.5	1	0.3	3	0.9	14	4.1	23	6.8
Dementia	0	0.0	0	0.0	0	0.0	9	2.7	9	2.7
Chronic lung disease [e.g. COPD, asthma]	3	0.9	0	0.0	0	0.0	14	4.1	17	5.0
Other	9	2.7	6	1.8	3	0.9	52	15.4	70	20.7
DENOMINATOR USED	338	NA	338	NA	338	NA	338	NA	338	NA

Table 13: DOA by year

Year	Non-DOA	%	DOA	%	Total	%
2020	103	44.6	23	21.5	126	37.3
2021	94	40.7	54	50.5	148	43.8
2022	34	14.7	30	28.0	64	18.9
Total	231	100.0	107	100.0	338	100.0

Table 14.

COVID-19 Related DEATHS MARCH 15, 2020 - MARCH 14, 2022	n	%
Diabetes on MD notes/line list entry + death certificate	79	23.4
Diabetes on death certificate but no MD notes/line list entry	29	8.6
Diabetes on MD notes/line list entry only	72	21.3
No diabetes diagnosis	158	46.7
	338	100.0
ANY DIABETES DIAGNOSIS	**180**	**53.3**