

COVID-19 Mortality and Diabetes on Guam

**by
Ann Pobutsky, PhD
Territorial Epidemiologist
DPHSS
Office of Epidemiology and Research**

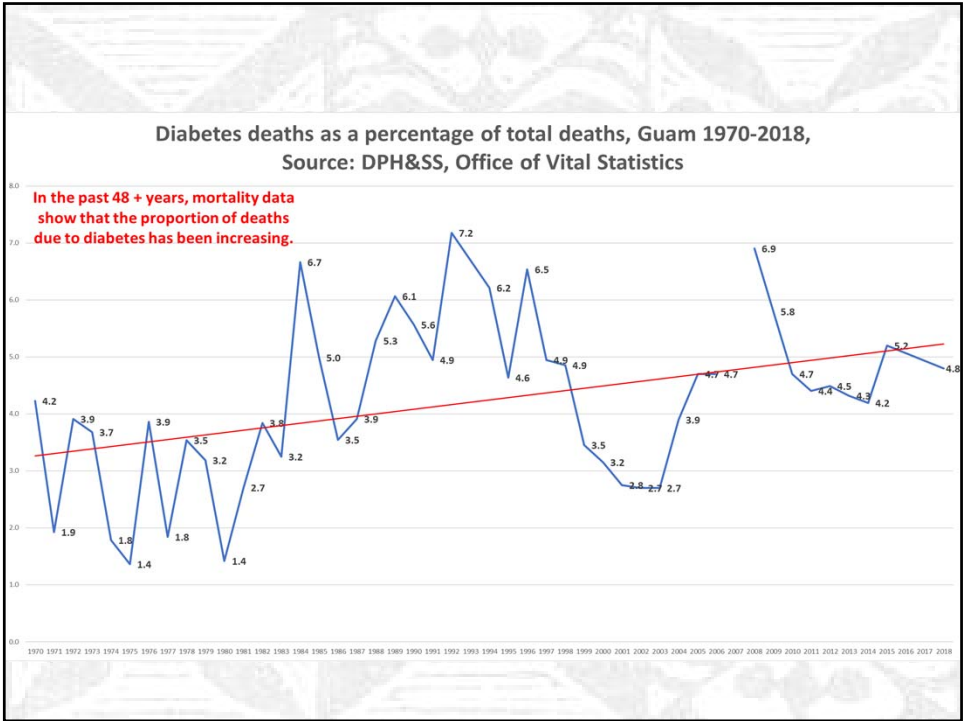
**VIRTUAL Guam Diabetes Control Coalition Meeting
November 14, 2020**

Background:

The prevalence of diabetes in Guam's population comes from 2018 and 2019 estimates from the CDC Behavioral Risk Factor Surveillance System (BRFSS).

- Guam has higher rates of diabetes at 13.7% (2018) and 11.7% (2019) overall compared to 10.9% (2018) and 10.8% (2019) in the U.S.
- Diabetes prevalence increases with age, with 20% of the Guam population estimated to have diabetes in the 55-64 age group and 22% in those over age 65.
- Diabetes prevalence on Guam is higher among those with lower education and lower household income.

Source: [Centers for Disease Control and Prevention: https://www.cdc.gov/brfss/index.html](https://www.cdc.gov/brfss/index.html)



U.S. data show that people with **underlying health conditions** (particularly **diabetes and obesity, chronic lung disease and cardiovascular disease**) tend to be at higher risk for severe COVID-19-associated disease (and mortality) than people without such conditions.

OER has been examining the patterns in COVID-19 deaths, particularly since the surge in August. Note there were only 5 deaths on Guam due to COVID-19 from March-July 2020, with the vast majority of the deaths (95%) occurring in the past 3 + months.

Source: Preliminary Estimates of the Prevalence of Selected Underlying Health Conditions Among Patients with Coronavirus Disease 2019 — United States, February 12–March 26, 2020. MMWR Weekly / April 3, 2020 / 69(13):382–386. Available at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6913e2.htm>

Adults at any age ARE at increased risk:	Adults at any age MIGHT BE be at increased risk:
Cancer	Asthma (moderate-to-severe)
Chronic kidney disease	Cerebrovascular disease (affects blood vessels and blood supply to the brain)
COPD (chronic obstructive pulmonary disease)	Cystic fibrosis
Heart conditions, such as heart failure, coronary artery disease, or cardiomyopathies	Hypertension or high blood pressure
Immunocompromised state (weakened immune system) from solid organ transplant	Immunocompromised state (weakened immune system) from blood or bone marrow transplant, immune deficiencies, HIV, use of corticosteroids, or use of other immune weakening medicines
Obesity (body mass index [BMI] of 30 kg/m2 or higher but < 40 kg/m2)	Neurologic conditions, such as dementia
Severe Obesity (BMI ≥ 40 kg/m2)	Liver disease
Pregnancy	Overweight (BMI > 25 kg/m2, but < 30 kg/m2)
Sickle cell disease	Pulmonary fibrosis (having damaged or scarred lung tissues)
Smoking	Thalassemia (a type of blood disorder)
Type 2 diabetes mellitus	Type 1 diabetes mellitus

Source: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fneed-extra-precautions%2Fgroups-at-higher-risk.html

We have been observing > deaths in Chuukese and Filipinos relative to their proportion in the population (that is, compared to what we should expect).

COVID-19 positive cases and deaths by known ethnicity as of November 10, 2020	# Cases (not deceased)	% (not deceased)	# deceased	% deceased	% of Guam population*
Native Hawaiian/ Pacific Islander - Chamorro	1,369	26.9%	22	26.5%	37.3
Native Hawaiian/ Pacific Islander - Chuukese	838	16.4%	26	31.3%	7.1
Native Hawaiian/ Pacific Islander - Other**	620	12.2%	4	4.8%	5.0
Asian-Filipino	1,483	29.1%	26	31.3%	26.3
Asian-Other***	164	3.2%	1	1.2%	5.9
European/White	306	6.0%	2	2.4%	7.1
Black/African American	11	0.2%	1	1.2%	1.0
All Others	306	6.0%	2	2.4%	10.3
Unknown (or blank)	465	NA	8	NA	NA
TOTAL	5,563	100.0%	91	100.0%	100.0
denominator used (less unknown ethnicity)	5,098		83		
*Tables 23-04 and 23-09, Guam Statistical Yearbook, 2018, pages 450 and 454. ** Includes Palauan, Pohnpeian, Carolinian and others. *** Includes Japanese, Korean, Asian Indian and others.					

Among the 4,628 confirmed **cases** of COVID-19 on Guam up to 11/10/2020, 357 out of 5,088 with complete information **(8.3%) had diabetes.**

Among the **deaths** with complete information as of 11/10/2020, 41 out of 88 cases which had full information **(53.4%) had diabetes.**

Many also have had hypertension, CVD and/or ESRD.

Note-the proportion of people with diabetes who also died of COVID-19 has hovered at approximately one-half of all deaths.

Sometimes it is more than one-half, sometimes it goes under one-half, depending on the daily count or whatever is the assessment at a point in time.

An additional COVID-19 mortality risk factor is older age:

Age	Diabetes Deaths from MD notes or line list		All cases	
0-19 years	0	0	910	16.1%
20-39 years	2	4.7%	2,273	40.2%
40-59 years	18	41.9%	1,817	32.1%
60+ years	23	53.5%	654	11.6%
TOTAL	43	100.0%	5,654	100.0%

Males are more likely to be comprised of both cases and deaths at 56%.

And the proportions are similar: 56% males and 44% females in both cases and deaths.

Point in time assessment/methodology:

All deaths with complete information from March 22 – November 10, 2020 were examined:

Deaths [from 3/12/2020 to 11/10/2020]	91
Death certificate	73
MD notes from hospital	46
DPHSS line list	59

Note there is a lag time from notification of the death to receipt of death certificate (2 weeks).

Mortality data will be included in the COVID-19 Weekly Surveillance Report (in progress).

CAUSES OF DEATH	Immediate Causes of Death [can be numerous]	Underlying Causes of Death [can be numerous]	Contributory Causes of Death [can be numerous]	Chronic conditions from MD notes or line list
Respiratory [e.g. ARDS, respiratory failure, and pneumonia]	51	22	2	
Cardiovascular [e.g. cardiac arrest, cardiopulmonary arrest]	11	2	9	26
Hypertension	0	0	17	49
Complications of COVID-10 infection	4	20	4	
Diabetes mellitus (or complications)	4	1	15	43
Critical bleeding conditions	4	1	2	
Renal (kidney conditions), including ESRD	6	0	9	16
Multi-organ failure	4	1	0	
Sepsis	2	1	1	
Infections [e.g. bacteremia]	1	1	4	
Morbid obesity	0	0	5	2
Tobacco	0	0	1	3
Cancer	1	0	3	6
Dementia	0	0	3	2
Chronic lung disease [e.g. COPD, asthma]	0	0	1	7
Other	1	1	4	7
DOA	1	0	0	

Most people have numerous causes of death

Summary of findings from COVID-19 related death certificates and MD notes/DPHSS forms:

People are dying of respiratory diseases mainly as immediate or underlying cause of death.

People are dying of cardiovascular diseases and/or events as an immediate or contributory cause of deaths.

People are dying of complications of COVID-19 infection as mainly underlying causes of death.

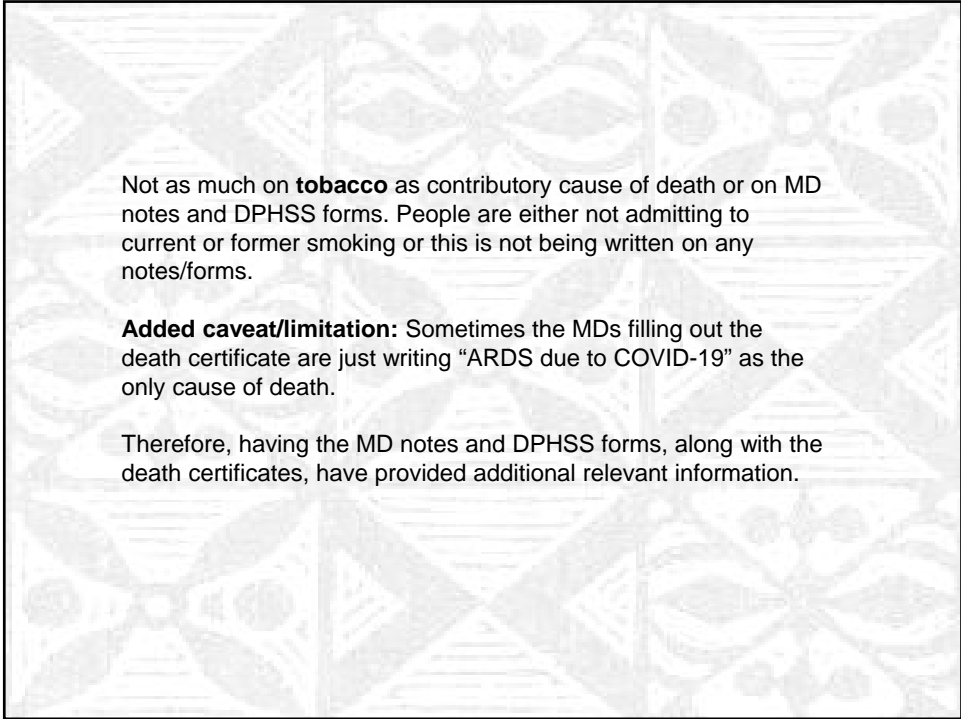
Biggest risk factors observed for COVID-19 related deaths are **diabetes and hypertension and/or CVD**, as well as renal diseases/EDRD, along with other chronic conditions.

Observing some, but not much:

dementia (n=3)

chronic lung disease (n=1) on death certificates, but more chronic lung diseases in MD notes (n=7).

A few MD's have written **morbid obesity** on death certificates (n=5) or in notes (n=2).



Not as much on **tobacco** as contributory cause of death or on MD notes and DPHSS forms. People are either not admitting to current or former smoking or this is not being written on any notes/forms.

Added caveat/limitation: Sometimes the MDs filling out the death certificate are just writing “ARDS due to COVID-19” as the only cause of death.

Therefore, having the MD notes and DPHSS forms, along with the death certificates, have provided additional relevant information.



For more information, contact:

Ann Pobutsky, PhD
Territorial Epidemiologist
671-888-9276 (WARN)
ann.pobutsky@dphss.guam.gov