



Health Analytics and Vital Records

Division of Public Health
Department of Health and Social Services
HealthAnalytics@Alaska.gov



Alaska Facts and Figures

Comorbidities in influenza and pneumonia deaths, Alaska, 2010-2019

Background

The CDC published a table showing conditions contributing to deaths involving COVID-19¹. To help clarify how death certificates work and how comorbidities are encountered with most causes of death, we performed an analysis similar to the CDC's, but focusing on pneumonia and influenza deaths rather than COVID-19. Influenza and pneumonia have been in the top ten leading causes of deaths in 7 out of the last 10 years, from 2010 to 2019.

Methods

We examined all deaths to Alaska residents from 2010 to 2019 where influenza or pneumonia (ICD-10 codes J09-J18) were listed as a cause of death in any position (either underlying or contributing). Using this subset of influenza and pneumonia deaths, causes of death on the certificates that were different from influenza or pneumonia were tabulated by age. We examined the percentage of death certificates listing only influenza or pneumonia as the cause of death. We further examined the average number of other conditions listed when influenza or pneumonia were not the only cause of death.

Conditions contributing to the death were identified using the International Classification of Diseases, Tenth Revision (ICD-10). Deaths involving more than one condition (e.g., deaths involving both diabetes and respiratory arrest) were counted in both totals. To avoid counting the same death multiple times, the numbers for different causes should not be summed.

Summary:

- There were 1,208 deaths from 2010-2019 where influenza or pneumonia was listed on the death certificate (Table 1).
 - Of those, 6.6% listed influenza or pneumonia as the only cause of death, very similar to what was found with COVID-19 death certificates.
- Of the conditions examined, respiratory failure and sepsis were the most common other conditions listed on the death certificate (Table 1).
- Circulatory disease and malignant neoplasms, or cancer, were the next most frequent conditions (Table 1).
- Decedents had an average of 2.0 conditions other than influenza or pneumonia or other/residual listed on death certificates, a little lower than what was found with COVID-19 death certificates.¹

¹ https://www.cdc.gov/nchs/nvss/vsrr/covid_weekly/index.htm#Comorbidities

Table 1: Conditions Contributing to Deaths where Influenza or Pneumonia was listed on the death certificate, Alaska Residents, 2010-2019

Conditions Contributing to Deaths where Influenza or Pneumonia was listed on the death certificate*	ICD-10 codes	Age Group								
		All ages	0-24 years	25-34 years	35-44 years	45-54 years	55-64 years	65-74 years	75-84 years	85 years and over
Total Flu and Pneumonia Deaths (2010-2019)	J09-J18	1,208	45	32	49	77	158	234	297	316
Flu or pneumonia as only cause of death	J09-J18	80	4	0	0	3	4	9	14	46
Respiratory diseases										
Chronic lower respiratory diseases	J40-J47	54	1	0	4	3	6	16	17	7
Adult respiratory distress syndrome	J80	47	1	4	6	7	12	5	10	2
Respiratory failure	J96	281	5	5	8	17	47	68	77	54
Respiratory arrest	R09.2	22	3	0	0	3	1	3	7	5
Other diseases of the respiratory system	J00-J06, J20-J39, J60-J70, J81-J86, J90-J95, J97-J99, U04	90	8	2	3	4	7	21	22	23
Circulatory diseases										
Hypertensive diseases	I10-I15	82	1	3	5	7	12	7	17	30
Ischemic heart disease	I20-I25	111	1	4	6	8	9	18	27	38
Cardiac arrest	I46	108	5	5	5	8	20	24	25	16
Cardiac arrhythmia	I44, I45, I47-I49	80	1	1	4	2	6	9	29	28
Heart failure	I50	118	0	2	1	2	7	16	36	54
Cerebrovascular diseases	I60-I69	105	3	1	1	7	12	23	32	26
Other diseases of the circulatory system	I00-I09, I26-I43, I51, I52, I70-I99	136	1	12	9	8	17	27	33	29
Sepsis	A40-A41	282	10	8	9	24	34	65	68	64
Malignant neoplasms	C00-C97	220	2	1	5	8	55	75	54	20
Diabetes	E10-E14	55	0	0	2	2	9	13	18	11
Obesity	E65-E68	17	0	0	5	1	2	6	2	1
Alzheimer disease	G30	24	0	0	0	0	1	1	8	14
Vascular and unspecified dementia	F01, F03	126	0	0	0	2	4	13	40	67
Renal failure	N17-N19	98	0	3	3	8	14	23	25	22
Intentional and unintentional injury, poisoning and other adverse events	S00-T98, V01-X59, X60-X84, X85-Y09, Y10-Y36, Y40-Y89, U01-U03	125	12	10	11	12	21	19	21	19
All other conditions and causes (residual)	A00-A39, A42-B99, D00-E07, E15-E64, E70-E90, F00, F02, F04-G26, G31-H95, K00-K93, L00-M99, N00-N16, N20-N99, O00-O99, P00-P96, Q00-Q99, R00-R08, R09.0, R09.1, R09.3, R09.8, R10-R99	699	29	25	34	52	121	145	152	141

*Conditions contributing to the death were identified using the International Classification of Diseases, Tenth Revision (ICD-10). Deaths involving more than one condition (e.g., deaths involving both diabetes and respiratory arrest) were counted in both totals. To avoid counting the same death multiple times, the numbers for different conditions should not be summed.