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New analysis of COVID-19 mortality risk for Californians with disabilities receiving IHSS or DDS services, with appendix of demographic data

H. Stephen Kaye, Ph.D, COVID-19 Mortality Risk for Recipients of California In-Home Supportive Services (IHSS) and Services from the California Department of Developmental Services (DDS) (Jan. 31, 2021)

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KAYE CONCLUSIONS:

- IHSS recipients, who have about 4 chronic health conditions on average (see Newcomer & Kang), have nearly 4 times as high a mortality risk from COVID-19 as people in the same age group without chronic conditions (FAIR report, Fig. 15).

- DDS service recipients, by virtue of having a diagnosis of an intellectual or developmental disability, have between 3.6 and 4.8 times the mortality risk from COVID-19 as people in the same age group without I/DD (FAIR report, Fig. 8)

- This increased risk for mortality among IHSS and DDS service recipients puts them in a risk category equivalent to other Californians in a higher age group. For example, IHSS/DDS service recipients between 45 and 64 years of age are at greater mortality risk from COVID-19 than the general, community-resident population between 65 and 74 years of age.

KAYE ANALYSIS:

Basic info from the most recent program data:
At least 89.5% of all IHSS recipients (all ages) get ADL help; 74.9% get help walking.
44.7% of IHSS recipients are under 65, or 287,776 people.
Source: December 2020 IHSS Program
Data. https://www.cdss.ca.gov/Portals/9/IHSS/Data/IHSS_Program_Data-Dec2020.xlsx)

Among IHSS recipients 18-64 years of age:
Average number of chronic health conditions: 4.2

Has diabetes or other endocrine/nutritional/metabolic disorder: 28.0%
Has cardiovascular condition: 33.3%
Has breathing problem or other pulmonary condition: 24.8%
Any Medicaid-paid ER visit in prior year: 58.5% (meaning total visits is ≥58.5%)
Any Medicaid-paid hospitalization in prior year: 23.3%
Average number of ADL limitations: 2.6
Average number of IADL limitations: 4.3
Source: 2005 data from Newcomer, R. & Kang, T. "Analysis of the California In-Home Support Services (IHSS) Plus Waiver Demonstration Program." (2008) Baltimore, MD: U.S. Department of Health and Human Services Office of Disability, Aging and Long-Term Care Policy. https://aspe.hhs.gov/pdf-report/analysis-california-home-supportive-services-ihss-plus-waiver-demonstration-program)

Among dually eligible IHSS recipients 18-64 years of age:
48% had at least 1 ER visit in the prior 6 months
29% had been hospitalized in the prior 6 months
Mean number of prescription medications currently taking: 8.7 (median is 7.5)
84% have a mobility limitation
52% use a wheelchair, scooter, or walker
25% use breathing equipment, respirator, or CPAP
77% rate their health as fair (42%) or poor (35%)
Source: Steve Kaye's analysis of 2017 survey data from the UCB/UCSF/SCAN Cal Medi-Connect Evaluation

Number and service setting of DDS service recipients:
311,806 "active consumers" as of 12/2020, of whom 297,162 (95.3%) are under 62, plus 40,034 "early start" (age<36 months), plus 9,771 "diagnosis & evaluation," of whom 9,748 are under 62.
Of total, 1,006 live in nursing homes, 293 in developmental centers, 6,366 in ICF, 2,257 in "other" (mostly institutional), 31,270 in "community care" (congregate), 247,967 in parent/guardian/family homes, and 26,991 in their own homes.
(CA DDS Monthly Caseload Report, December 2020 https://www.dds.ca.gov/wp-content/uploads/2021/01/Caseload_Redacted_2020_12.xlsx and CA DDS Quarterly Client Characteristics Report, December 2020,https://www.dds.ca.gov/wp-content/uploads/2021/01/FactsStats_Dec2020_Quarterly.doc)

Diagnoses & functioning of DDS service recipients (all ages):
55.3% have an intellectual disability
43.1% have autism
11.5% have cerebral palsy
12.5% have epilepsy
10.6% have some other developmental disability
22.9% have "medical problems"
19.6% are "unable to walk"
(CA DDS Quarterly Client Characteristics Report, December 2020, https://www.dds.ca.gov/wp-

content/uploads/2021/01/FactsStats_Dec2020_Quarterly.doc)

At least 57% of DDS service recipients need help with ADLs (57.0% needed help with bathing, the most common ADL, in 2013, according to: Charlene Harrington, Taewoon Kang; Disparities in Service Use and Expenditures for People With Intellectual and Developmental Disabilities in California in 2005 and 2013. Intellect Dev Disabil 1 February 2016; 54 (1). https://www.researchgate.net/publication/292304759_Disparities_in_Service_Use_and_Expenditures_for_People_With_Intellectual_and_Developmental_Disabilities_in_California_in_2005_and_2013)

Health conditions & functional limitations among DDS Service recipients (all ages):
29% fall into the "overweight" category and 33% into the "obese" category
6% have cardiovascular disease
10% have diabetes
19% have hypertension
17% have high cholesterol
11% need help getting around
12% don't need help getting around but use assistive devices
30% are in "fairly good" health and 2% are in "poor" health
Source: HSRI & NASDDDS, National Core Indicators In-Person Survey: California Statewide Report Fiscal Year 2017-18. (2019) Sacramento, CA: California Department of Developmental Services. https://www.dds.ca.gov/wp-content/uploads/2019/11/adultConsumerSuryvey4FY17_18.pdf)

California community (non-institutionalized) COVID-19 mortality rates by age:
I looked at California COVID-attributed deaths for 2020 (roughly the full year, plus or minus a few weeks depending on the reporting & processing lag), as compiled by the CDC, by age and place of death. I took out deaths occurring in nursing homes. That's the numerator for each age group; for the denominator, I obtained the non-institutional California population by age group from the American Community Survey. From those I approximated the **community-resident** COVID-attributed mortality by age group, as follows:

Ages 0-14: 0
Ages 15-44: 6.9 deaths per 100,000 pop
Ages 45-64: 63.2 deaths per 100,000 pop
Ages 65-74: 177.5 deaths per 100,000 pop (2.8 x mortality rate for 45-64)
Ages 75-84: 372.9 deaths per 100,000 pop (5.9 x mortality rate for 45-64)
Ages 85+: 884.7 deaths per 100,000 pop (14.0 x mortality rate for 45-64)

Comparison to mortality for people under 65 with comorbidities:
One way to compare the general California community COVID mortality rate to the rate of those under 65 with comorbidities is to look at Figure 15 in the FAIR report: When a person has multiple comorbidities (pre-existing chronic conditions), their mortality goes way up. IHSS users have many chronic conditions. DDS service users have ID or DD

plus obesity, other chronic conditions, etc. The characteristics of IHSS users and recipients of DDS services suggest that the COVID-19 mortality risk for 45 to 64-year-olds who use IHSS/DDS services is roughly 4 times as high as for other in their age group, or somewhat greater than that of 65 to 74-year-olds.

Conclusions:

- IHSS recipients, who have about 4 chronic health conditions on average (see Newcomer & Kang), have nearly 4 times as high a mortality risk from COVID-19 as people in the same age group without chronic conditions (FAIR report, Fig. 15).

- DDS service recipients, by virtue of having a diagnosis of an intellectual or developmental disability, have between 3.6 and 4.8 times the mortality risk from COVID-19 as people in the same age group without I/DD (FAIR report, Fig. 8)

- This increased risk for mortality among IHSS and DDS service recipients puts them in a risk category equivalent to other Californians in a higher age group. For example, IHSS/DDS service recipients between 45 and 64 years of age are at greater mortality risk from COVID-19 than the general, community-resident population between 65 and 74 years of age.

FAIR HEALTH DATA:

FAIR Health, White Paper, Risk Factors for COVID-19 Mortality among Privately Insured Patients: A Claims Data Analysis (Nov. 11, 2020), https://s3.amazonaws.com/media2.fairhealth.org/whitepaper/asset/Risk%20Factors%20for%20COVID-19%20Mortality%20among%20Privately%20Insured%20Patients%20-%20A%20Claims%20Data%20Analysis%20-%20A%20FAIR%20Health%20White%20Paper.pdf

Excerpts:

> In collaboration with the West Health Institute and Marty Makary, MD, MPH, from Johns Hopkins University School of Medicine, FAIR Health undertook an analysis using the largest private healthcare claims database in the United States, the FAIR Health National Private Insurance Claims (FH NPIC) repository. The study's overarching goal was to generate a set of results using big data analysis in order to inform public health recommendations and policies, particularly those related to protocols for distribution of first-line vaccines or therapeutics. Our primary study objective was to study the risk factors (patient age, gender and preexisting comorbidities) for COVID-19 mortality among privately insured patients. (p. 3)
>
> **Developmental disorders.** Across all age groups, COVID-19 patients with developmental disorders (e.g., developmental disorders of speech and language,

developmental disorders of scholastic skills, central auditory processing disorders) had the highest odds of dying from COVID-19 (odds ratio [OR]=3.06, 95 percent confidence interval [CI], 1.554-6.008, *P*=0.0105).

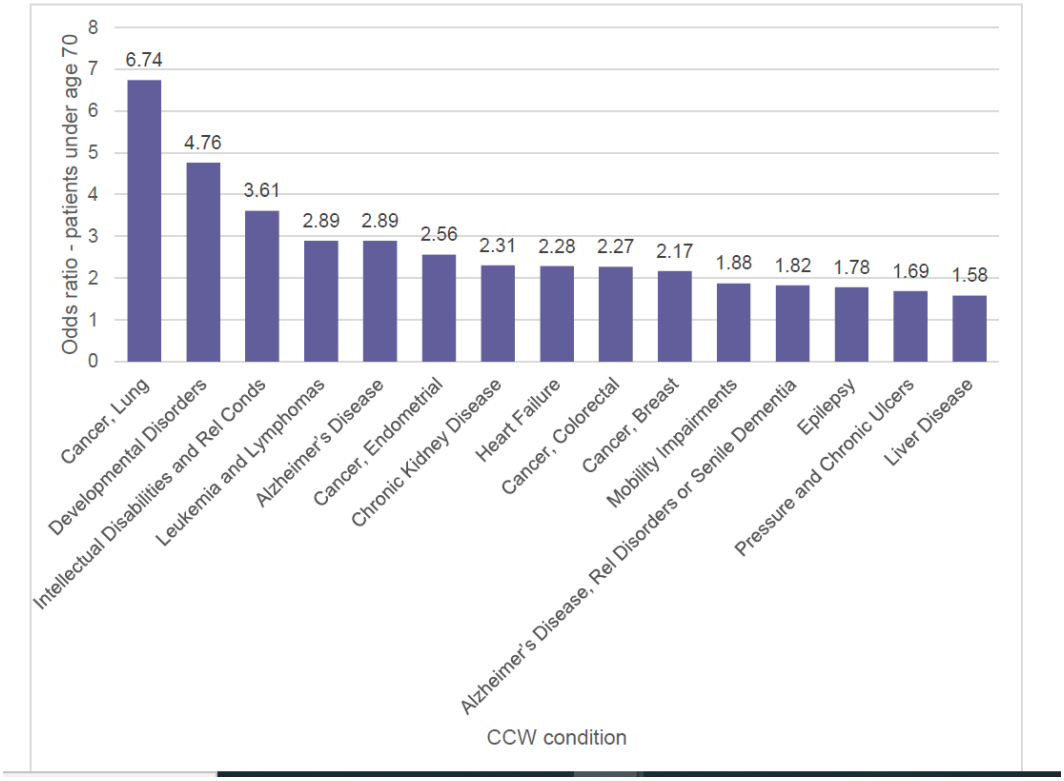
Intellectual disabilities and related conditions. Across all age groups, COVID-19 patients with intellectual disabilities and related conditions (e.g., Down syndrome and other chromosomal anomalies; mild, moderate, severe and profound intellectual disabilities; congenital malformations, such as certain disorders that cause microcephaly) had the third highest risk of COVID-19 death (OR=2.75, 95 percent CI, 1.657-4.558, *P*=0.0005). Among COVID-19 patients under age 70, intellectual disabilities and related conditions still had the third highest risk (OR=3.61, 95 percent CI, 1.878-6.930, *P*=0.0007). (p 2)

Comorbidities as Risk Factors for COVID-19 Mortality: COVID-19 patients across all age groups had greater odds of dying if they had any of the 15 comorbidities…. (p. 11) The risk of COVID-19 mortality was generally higher for a comorbidity for patients under age 70 than it was for the same comorbidity for patients of all ages. (p. 15)

Multiple comorbidities. As a patient's number of comorbidities increased, so did the odds of dying from COVID-19. (p. 2) In the population of COVID-19 patients under age 70, the risk of COVID-19 death increased significantly with a patient's number of comorbidities (figure 15), as it did in the population of patients of all age groups (figure 14). But under age 70, patients with five comorbidities had greatly increased odds of dying (OR=14.26, 95 percent CI, 11.616-17.495, P<0.0001) compared to patients with five comorbidities in the population of all ages (OR=7.79). (p. 22)

DREDF/Kaye note: People with private health insurance tend to be healthier than people using Medicaid. *See*, *e.g.*, Aaron E. Carroll and Austin Frakt, "Don't Assume that Private Insurance is Better than Medicaid," New York Times, July 12, 2017, https://www.nytimes.com/2017/07/12/upshot/dont-assume-that-private-insurance-is-better-than-medicaid.html ("People with private insurance are healthier and wealthier than those on Medicaid, and in ways not fully controlled for in statistical analyses. These factors almost certainly predispose someone on Medicaid to have worse outcomes than someone with private insurance.").

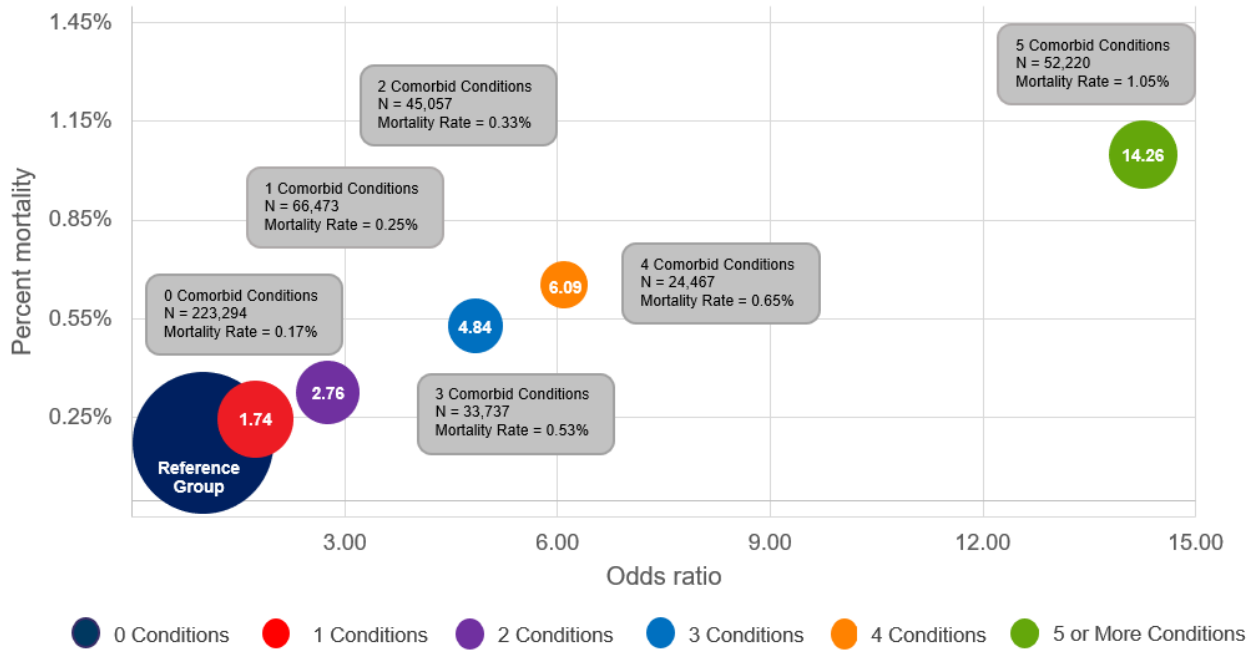
Figure 8. Comorbidity risk factors for COVID-19 mortality, adjusted for age and gender, by odds ratio, patients under age 70, April-August 2020



Text description of figure 8: A bar chart showing 15 vertical blue bars with a vertical axis labeled, “Odds ratio - patients under age 70.” Each bar is labeled with a chronic condition or group of conditions, and each has a number indicating an odds ratio between 1.58 and 6.74. Particular chronic conditions with odds ratios are listed in decreasing order, with the chronic conditions with the highest odds ratios on the left side, as follows:

Cancer, Lung: 6.74
Developmental Disorders: 4.76
Intellectual Disabilities and Related Conditions: 3.61
Leukemia and Lymphomas: 2.89
Alzheimer's Disease: 2.89
Cancer, Endometrial: 2.56
Chronic Kidney Disease: 2.31
Heart Failure: 2.28
Cancer, Colorectal: 2.27
Cancer, Breast: 2.17
Mobility Impairments: 1.88
Alzheimer's Disease, Related Disorders or Senile Dementia: 1.82
Epilepsy: 1.78
Pressure and Chronic Ulcers: 1.69
Liver Disease: 1.58

Figure 15. Mortality rates and odds ratios for mortality risk by number of comorbid conditions, COVID-19 patients under age 70, April-August 2020



Text description of figure 15: A bubble chart scatterplot showing 6 differently colored bubbles representing the populations with 0, 1, 2, 3, 4, and 5 or more comorbid conditions. The horizontal axis is labeled "Odds ratio" and the vertical is labeled "Percent mortality." The size of the bubbles varies according to the proportion of the population with each level of comorbidity, with a large blue bubble representing 0 conditions and labeled “reference group” at the lower left and a smaller green bubble for 5 or more conditions near the upper right. In between, the bubbles for 1 through 4 comorbid conditions lie approximately along a line connecting the blue and green bubbles. Text boxes and text bubbles state the number of comorbid conditions, the odds ratio, the number of people, and the mortality rate as follows:

0 Comorbid Conditions, N=223,294, Mortality Rate=0.17%,
1 Comorbid Conditions, Odds ratio 1.74, N=66,473, Mortality Rate=0.25%
2 Comorbid Conditions, Odds ratio 2.76, N=45,057, Mortality Rate=0.33%
3 Comorbid Conditions, Odds ratio 4.84, N=33,737, Mortality Rate=0.53%
4 Comorbid Conditions, Odds ratio 6.09, N=24,467, Mortality Rate=0.65%
5 Comorbid Conditions, Odds ratio 14.26, N=52,220, Mortality Rate=1.05%

APPENDIX – ADDITIONAL DEMOGRAPHIC DATA COMPILED BY SILVIA YEE, SENIOR STAFF ATTORNEY, DREDF

Among those who receive Regional Center Services:

Hispanic	40.24%
White	29.49%
Other	12.40%
Black/African American	8.32%
Asian	6.8%
Filipino	2.22%
Native American	0.32%
Polynesian	0.21%

Regional Center clients 21 years and younger are more likely to be non-white (77.92% race or ethnicity other than white) compared to Regional Center clients 22 years and older (57.33% race or ethnicity other than white).

Source: California Department of Developmental Services, Ethnicity & Race, https://www.dds.ca.gov/rc/dashboard/purchase-of-service-report/ethnicity-race/

The PACE program provides primarily community-based care and care coordination for people 55 yrs and older who require a nursing home level of care. 41% of participants have a primary spoken language of Spanish, 33% have English, and 13% have Chinese.

Source: CalPACE, Program of All-Inclusive Care for the Elderly, http://www.calpace.org/wp-content/uploads/2018/04/CalPACE_General_Fact_Sheet_02.21.2018.pdf

A racial/ethnic snapshot of IHSS recipients from December 2020 reveals a similarly diverse enrollment population:

White 195,882 (30.4%)
Hispanic: 192,582 (29.9%)
Black: 91,588 (14.2%)
Chinese 41,663 (6.5%)
Vietnamese: 27,057 (4.2%)
Filipino 20,735 (3.2%)
Korean 12,498 (1.9%)

Among IHSS participants, just over half speak a language other than English (50.4%).

Source: IHSS Program Data File (Dec. 2020), https://www.cdss.ca.gov/Portals/9/IHSS/Data/IHSS_Program_Data-Dec2020.xlsx

In New York City, of nearly 300,000 city residents who received one dose and whose race was recorded: about 48% of vaccine recipients were white (compared to 32% share of city population); 15% were Latino (compared to 29% of city population); and 11% were Black (compared to 24% of city population).

Source: Emma G. Fitzsimmons, "Black and Latino New Yorkers Trail White Residents in Vaccine Rollout," New York Times (Jan. 31, 2021), https://www.nytimes.com/2021/01/31/nyregion/nyc-covid-vaccine-race.html?action=click&module=Top%20Stories&pgtype=Homepage.

A January 26, 2021 presentation of the Alameda County COVID 19 Vaccine Community Advisory Group showed the following distribution of vaccines by race and ethnicity:

White: 48%
Asian: 30%
None stated: 9%
Other: 5%
Latinx: 4%
Black: 3%
Native American: >1%
Mixed Race: >1%

Source: Alameda County COVID-19 Vaccine Community Advisory Group, Meeting 3 (Jan. 26, 2021) (slide 13), https://covid-19.acgov.org/covid19-assets/docs/vaccines/community-vaccine-advisory-committee-meeting-slides-2021.01.26.pdf

Alameda County has the following distribution of population by race and ethnicity:

White: 30.9%
Asian: 30.6%
Hispanic: 22.4%
Black: 10.1%
Multi-Racial: 4.47%

Source: Data USA: Alameda County, California (2018 data), https://datausa.io/profile/geo/alameda-county-ca