

A vaccination prioritization strategy focused entirely on age has been proposed. Merits to this approach include a) simplicity that might lead to greater efficiency in the vaccine roll-out, and b) preference for the population that are most likely to die once infected thus reducing the greatest amount of suffering.

Examination of COVID deaths in California from the onset of the pandemic through November reinforces the notion that an age 65 and older strategy for vaccine allocation implemented perfectly from the start would have prevented more than 2/3 of COVID deaths (73%).

Is this approach focused solely on age 65 and older equitable? Unfortunately, beneath this large potential impact is important variation. For example, this approach would prevent more than 80% of deaths among White or Asian Californians, but a much lower percentage of deaths among Black and Latino Californians (70% and 62% respectively). The numbers are even more stark when one considers demographics of the Californians under 65 who have died from COVID-19 and whose death would not be prioritized for prevention with an age-based vaccine roll-out. Nearly 3/4 of all deaths among those less than 65 are among Latinos.

Equity is a consideration in the vaccine roll-out, first and foremost because of the disproportionate burden in our low-income communities and communities of color. However, equity is also an important consideration in how effective our vaccine campaign will actually be. Transmission is currently highest in many parts of our counties and state, in precisely the same communities that will be missed with a focus solely on age greater than 65 years.

What strategies can be deployed to retain simplicity (and therefore efficiency) in the vaccine roll-out, while also achieving something more equitable? One attractive option is to marry an age-based approach throughout the state with a targeted “place-based” approach that allocates vaccinations to communities with high transmission and allows for vaccine distribution in these communities more liberally (without strict age requirements). Such an approach would be more equitable (geographic locations with high transmission experience more hospitalizations and deaths and are more likely to be lower income). A place-based approach also has critical elements that are compatible with efficiency. An older adult could be vaccinated with their caregiver. A low-wage frontline essential worker could be vaccinated with others in their household. Mobilization within hard-hit communities can leverage outreach with community and civic leaders in those communities, a strategy that has potential to address vaccine hesitancy. And a place-based strategy is itself as easy to operationalize as an age based one (operationalized via address).

The goal in an efficient, effective, and equitable roll-out of coronavirus vaccines in California. Linking an age-based strategy with a place-based approach targeting communities that have been disproportionately impacted by COVID 19 is grounded in the data and offers us the best chance to achieve this ambitious goal.

Table 1: Percent of COVID-19 deaths occurring among Californians 65 years of age or older, after removing healthcare workers and nursing residents, March through December 2020.

	Percent
Entire state	73.1
Asian	85.4
Black	69.6
Latino	61.7
White	88.0
No high school degree and no GED	71.1
High school degree or GED	71.6
Some college or associate degree	71.8
Bachelor's degree or beyond	83.4
North Coast and Superior California	84.0
San Francisco Bay Area	78.5
Northern San Joaquin Valley	73.7
Central Coast	76.1
Southern San Joaquin Valley	69.9
Inland Empire	69.4
Los Angeles County	71.5
Orange County	71.5
San Diego County and Imperial County	74.8

Table 2: Number of COVID-19 deaths occurring among Californians, by age, after removing healthcare workers and nursing residents, March through December 2020.

	Counts		Percents	
	0-64	65+	0-64	65+
Entire state	5,681	15,445	100.0	100.0
Asian	336	1,967	6.1	13.0
Black	403	921	7.3	6.1
Latino	4,018	6,467	72.5	42.7
White	786	5,774	14.2	38.2
No high school degree and no GED	2,255	5,546	41.1	37.4
High school degree or GED	1,871	4,714	34.1	31.8
Some college or associate degree	905	2,300	16.5	15.5
Bachelor's degree or beyond	452	2,266	8.2	15.3
North Coast and Superior California	241	1,266	4.2	8.2
San Francisco Bay Area	406	1,480	7.1	9.6
Northern San Joaquin Valley	383	1,075	6.7	7.0
Central Coast	166	529	2.9	3.4
Southern San Joaquin Valley	494	1,149	8.7	7.4
Inland Empire	1,034	2,340	18.2	15.2
Los Angeles County	2,060	5,172	36.3	33.5
Orange County	492	1,233	8.7	8.0
San Diego County and Imperial County	405	1,201	7.1	7.8