



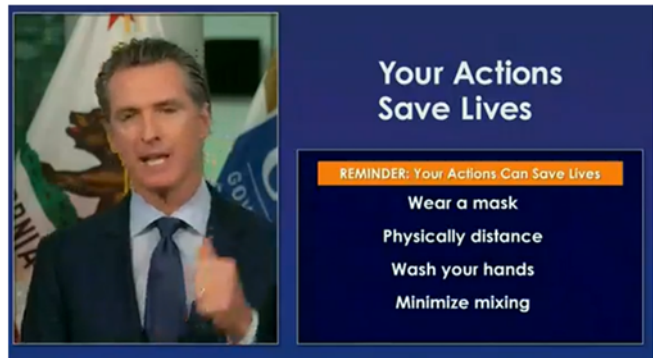
July 20, 2020

To: Distribution

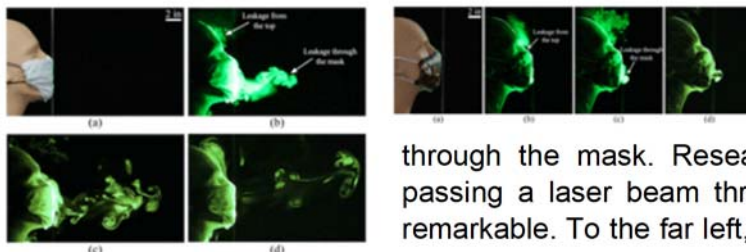
From: Pandemic Working Group

Re: COVID-19: Schools Reopening ~ Physics and Masks ~ Vaccine Timeline

California Schools. As reported by multiple outlets, late last Friday, California Governor Gavin Newsom announced a statewide school reopening plan that affects all schools both public and private. Specifically, he ordered that all schools within counties currently on the state’s “watch list” – which at this point includes 32 counties comprising about 88% of the population – would remain remote – that is, no in-person instruction - until that school’s county has been off the list for at least 14 consecutive days. Counties, such as Los Angeles and Orange, were placed on the list when pandemic curves relating to positivity, hospitalization and ICU capacity were not met over a three-day measuring period. In issuing the order, the governor stated that “Learning is non-negotiable. Neither is safety.” He explained further that his approach is entirely data driven with the aim of achieving safe in-person schooling based on local pandemic trends. He then posited a set of protocols for reopening of schools in counties not on the watch list, including wearing of masks by staff and children in the 3rd grade and above, distancing, temperature checks, handwashing, sanitization and quarantine protocols. The governor’s action supersedes the myriad approaches that had been announced by multiple school districts in the affected counties.



The Physics of Fluids. The American Institute of Physics just published a study entitled “Visualizing the effectiveness of face masks in obstructing respiratory jets,” in which researchers tested the ability of cloth face coverings to block respiratory droplets. The study involved designing a hollow manikin head having nasal- and buccal-cavities, fitting the model with various cloth face



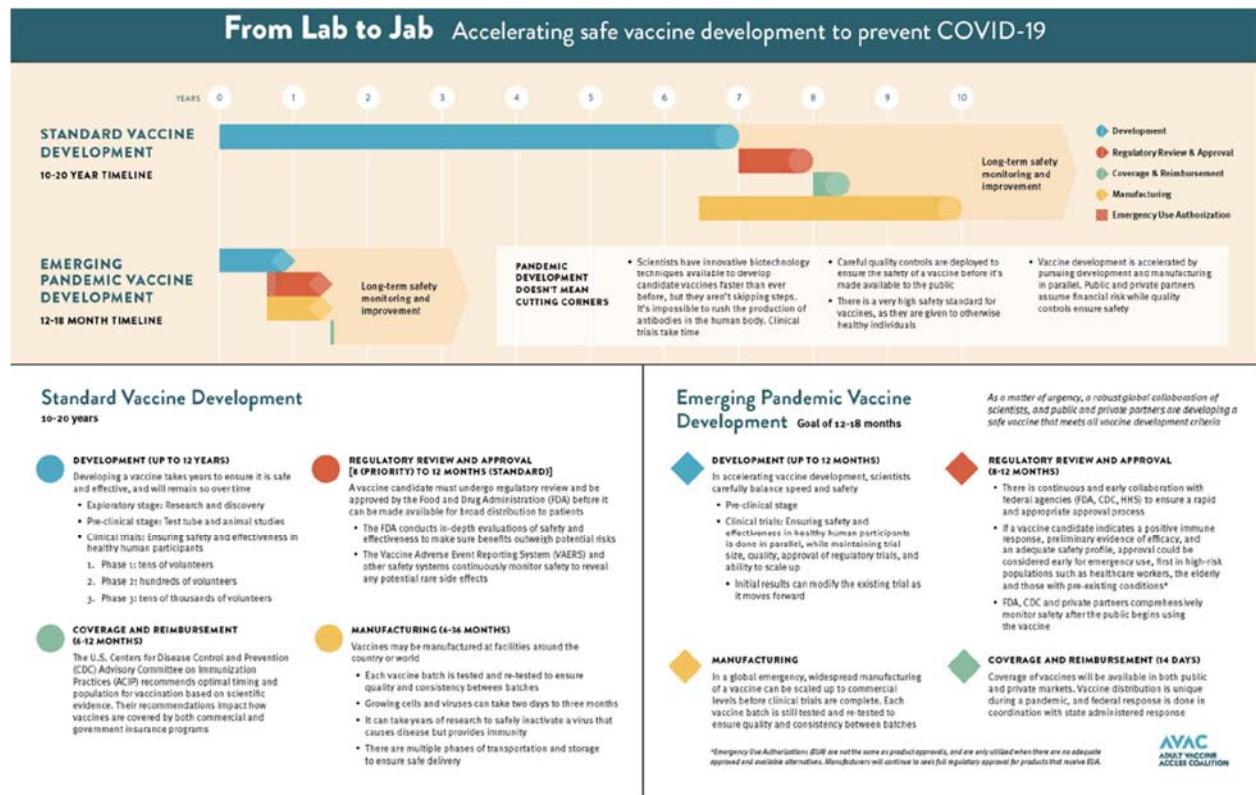
coverings and simulating a cough or sneeze by pumping a blast of compressed air through a mixture of glycerin and distilled water through the mask. Researchers traced the resulting fog by passing a laser beam through a glass rod. The results are remarkable. To the far left, you see the distance of propagation

of a “cough” through a folded handkerchief, while, to the right, you see the much shorter distance through a homemade, two-ply mask with a thread count of 70. Researchers summarized their findings below, noting that uncovered jets travelled an average distance of eight feet, while a well-fitted, two-ply face covering limited that to only 2.5 inches. We are finding that researchers such as these continue to test the limits of masks. This test only serves to confirm what CDC and others have been recommending and gives a significant edge to two-ply, close fitting cloth.

Mask type	Material	Threads/in.	Average jet distance
Uncovered	---	---	~8 ft
Bandana	Elastic T-shirt material	85	~3 ft 7 in.
Folded handkerchief	Cotton	55	1 ft 3 in.
Stitched mask	Quilting cotton	70	2.5 in.
Commercial mask ^a	Unknown	Randomly assorted fibres	8 in.

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Comparative Vaccine Timeline. This just in courtesy of John Killmer, our Lead Director - a graphic depiction of how the standard vaccine development timeline compares to the coronavirus timeline. At this stage, over 135 COVID vaccine projects are underway globally. We will be reporting on a few of the more promising projects this week. However, this primer, from the Adult Vaccine Access Coalition, shows how ambitious and extraordinary the coronavirus vaccine effort has become.



If you have any questions or comments on this advisory, please contact either kellyw@amvac.com or timd@amvac.com.