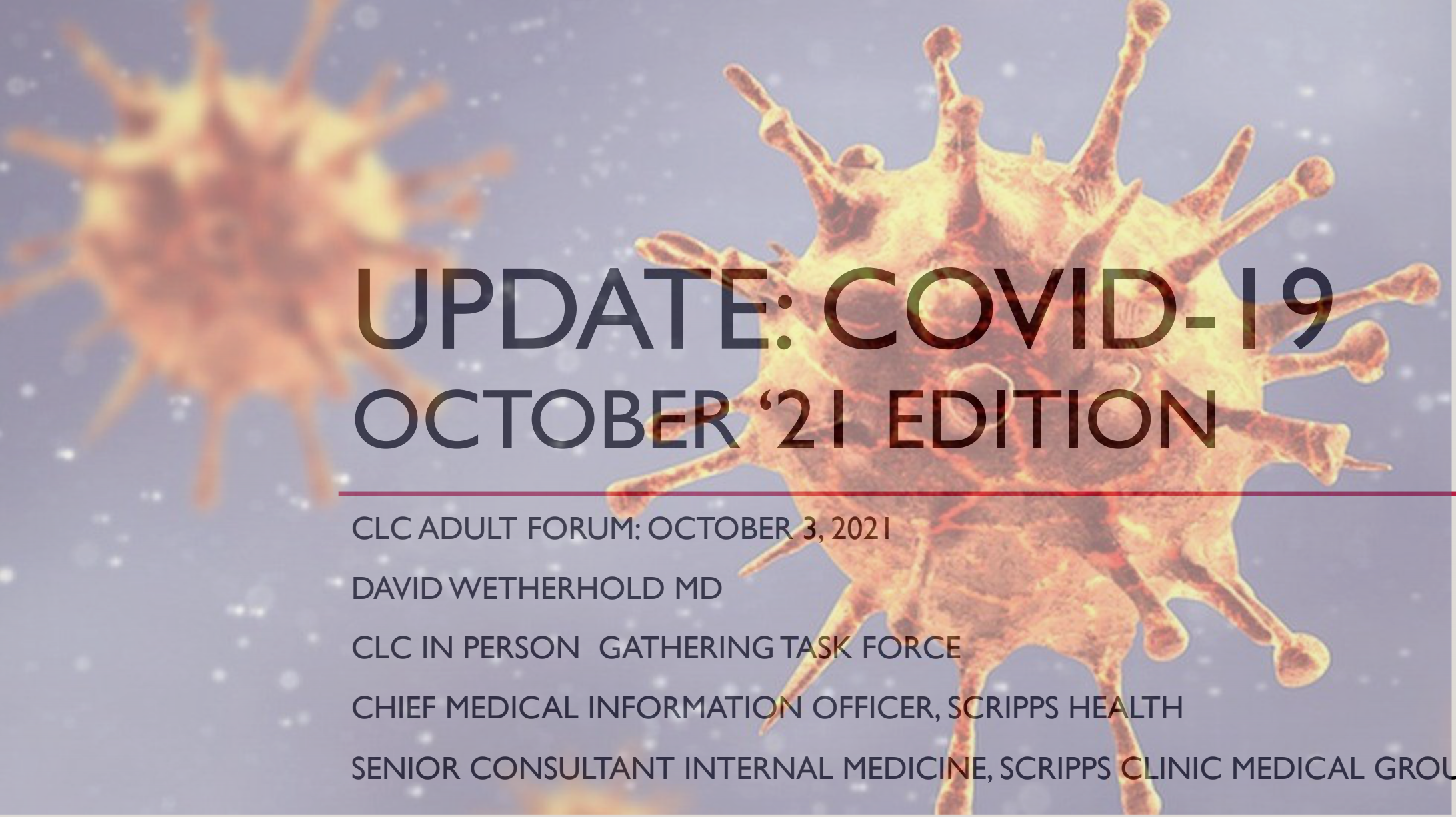

UPDATE: COVID-19
OCTOBER '21 EDITION

CLC ADULT FORUM: OCTOBER 3, 2021

DAVID WETHERHOLD MD

CLC IN PERSON GATHERING TASK FORCE

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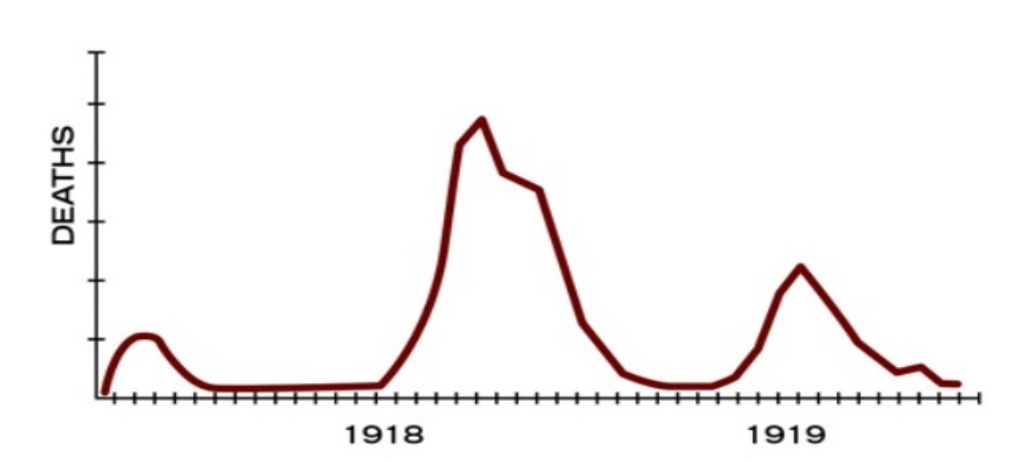
COVID-19'S DESTRUCTIVE PATH

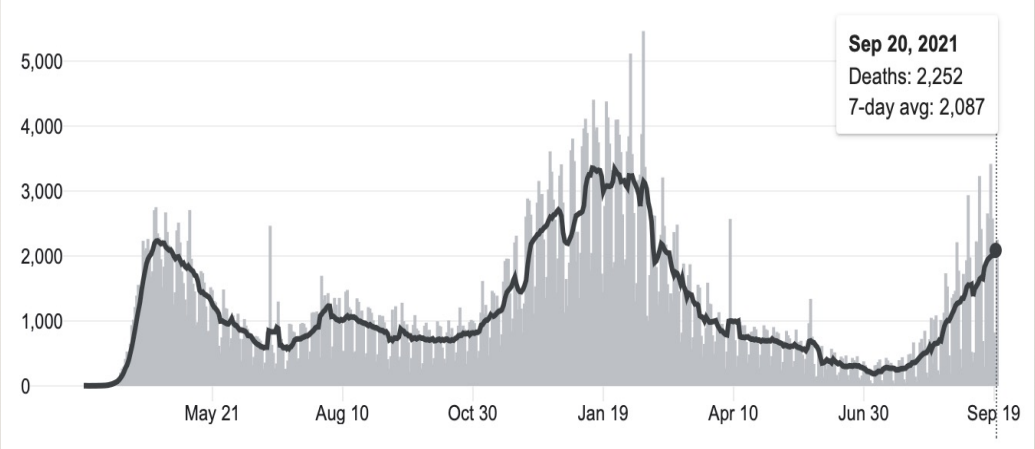
- World
  - 219,000,000 cases & 4,500,000 deaths
- United States
  - 43,000,000 cases & 688,000 deaths
- California
  - 4,700,000 cases & 69,000 deaths
- San Diego
  - 355,000 cases & 4,054 deaths

- Latin America hardest hit
  - 8% global population
  - 33% of Covid-19 deaths

- 1 of every 100 children in Peru lost primary parent
- Mexico 120,000 children lost a parent
- 40,000 children in the United States have lost at least 1 parent

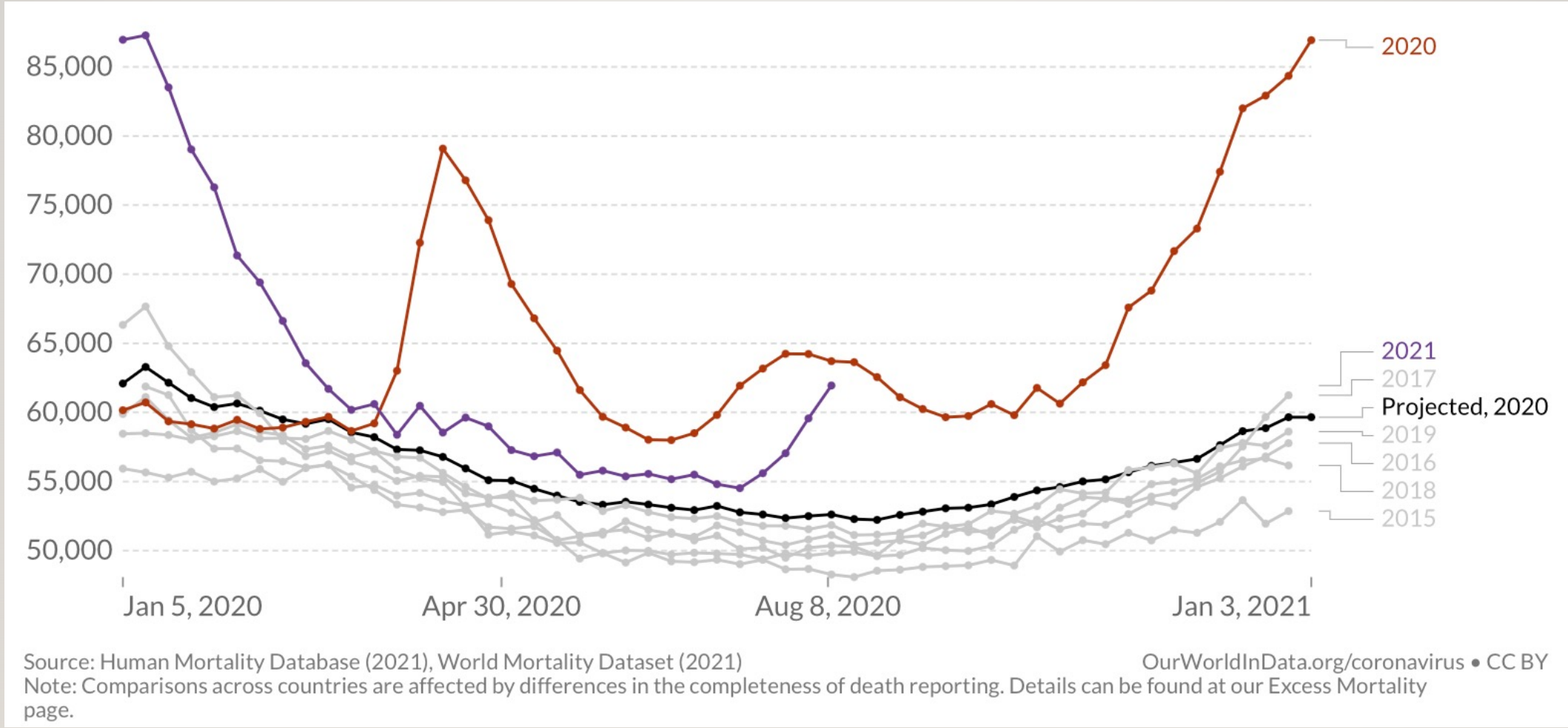
1918 PANDEMIC VS 2020 PANDEMIC
1918 DEATHS – 675,000 – 1 IN 150 AMERICANS
2020 DEATHS – 700,000 – 1 IN 500 AMERICANS



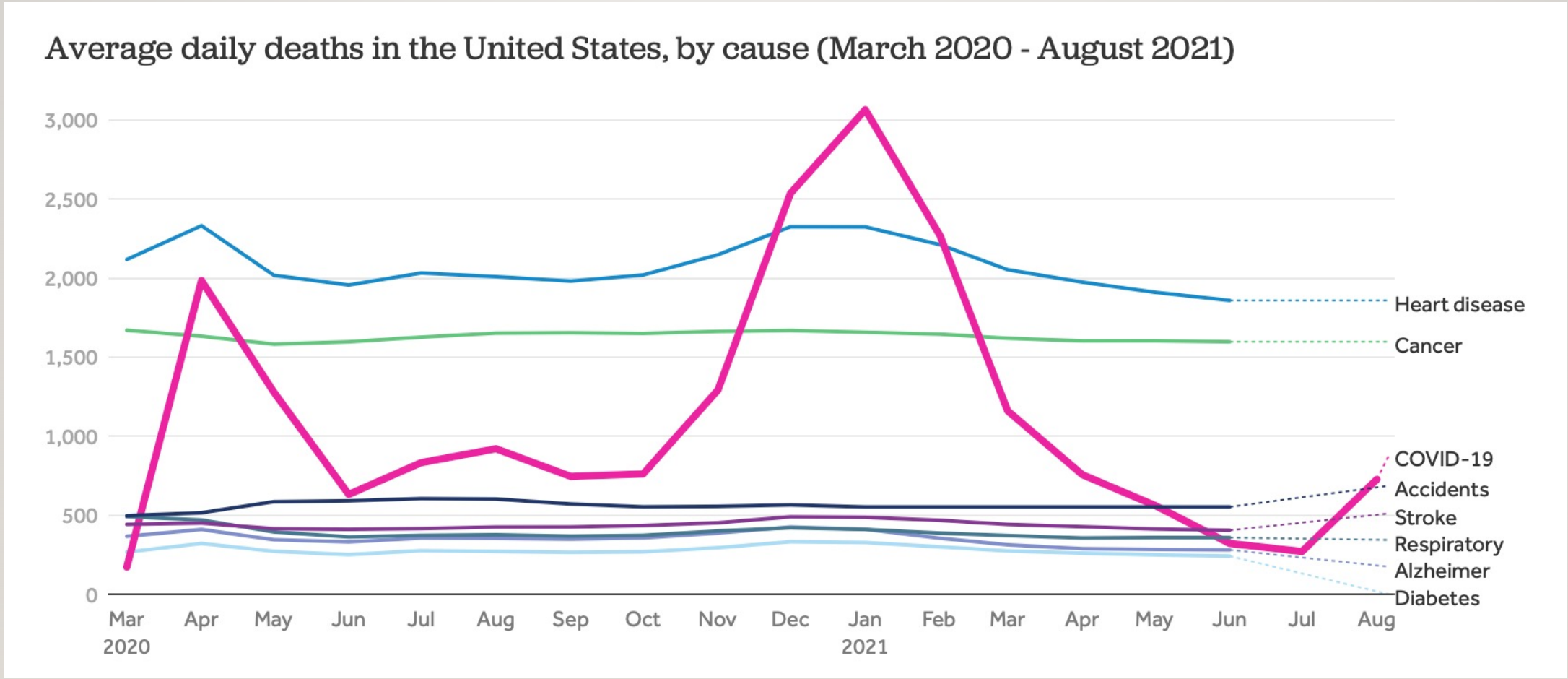


COVID DEATHS FAR EXCEED EXPECTED DEATHS LIFE EXPECTANCY DOWN 1.5 YEARS TO 77.3*

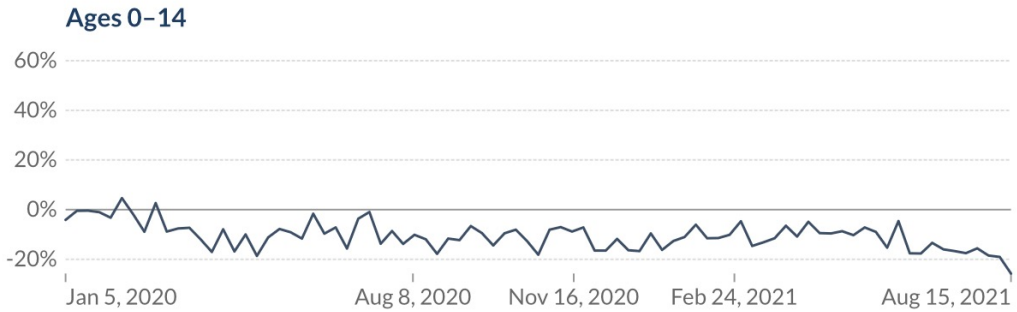
* Biggest drop since WWII

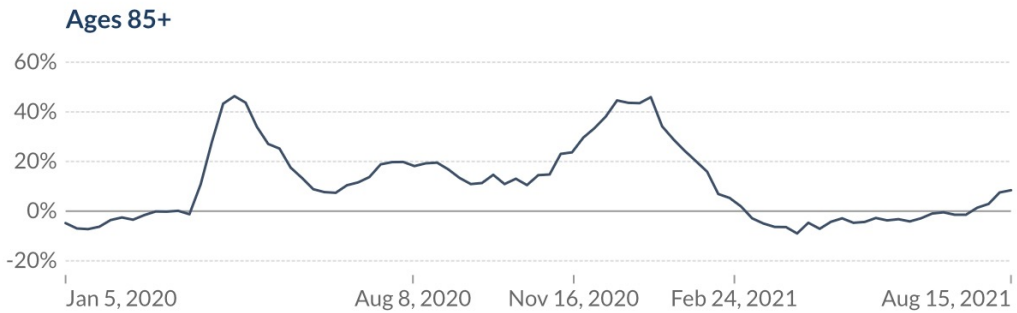


COVID-19 DEATHS COMPARED TO OTHER CAUSES



EXCESS MORTALITY BY AGE GROUPS





Ages	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+	All ages
Jan '21	11	6	4	2	2	1	1	1	1	1	1
Feb '21	13	7	5	4	4	3	3	2	1	2	1
Mar '21	15	8	6	6	5	4	3	3	3	5	3
Apr '21	7	7	6	6	5	4	3	3	3	5	3
May '21	11	9	5	6	5	4	3	3	5	6	3
Jun '21	15	12	7	6	5	4	4	5	7	7	6

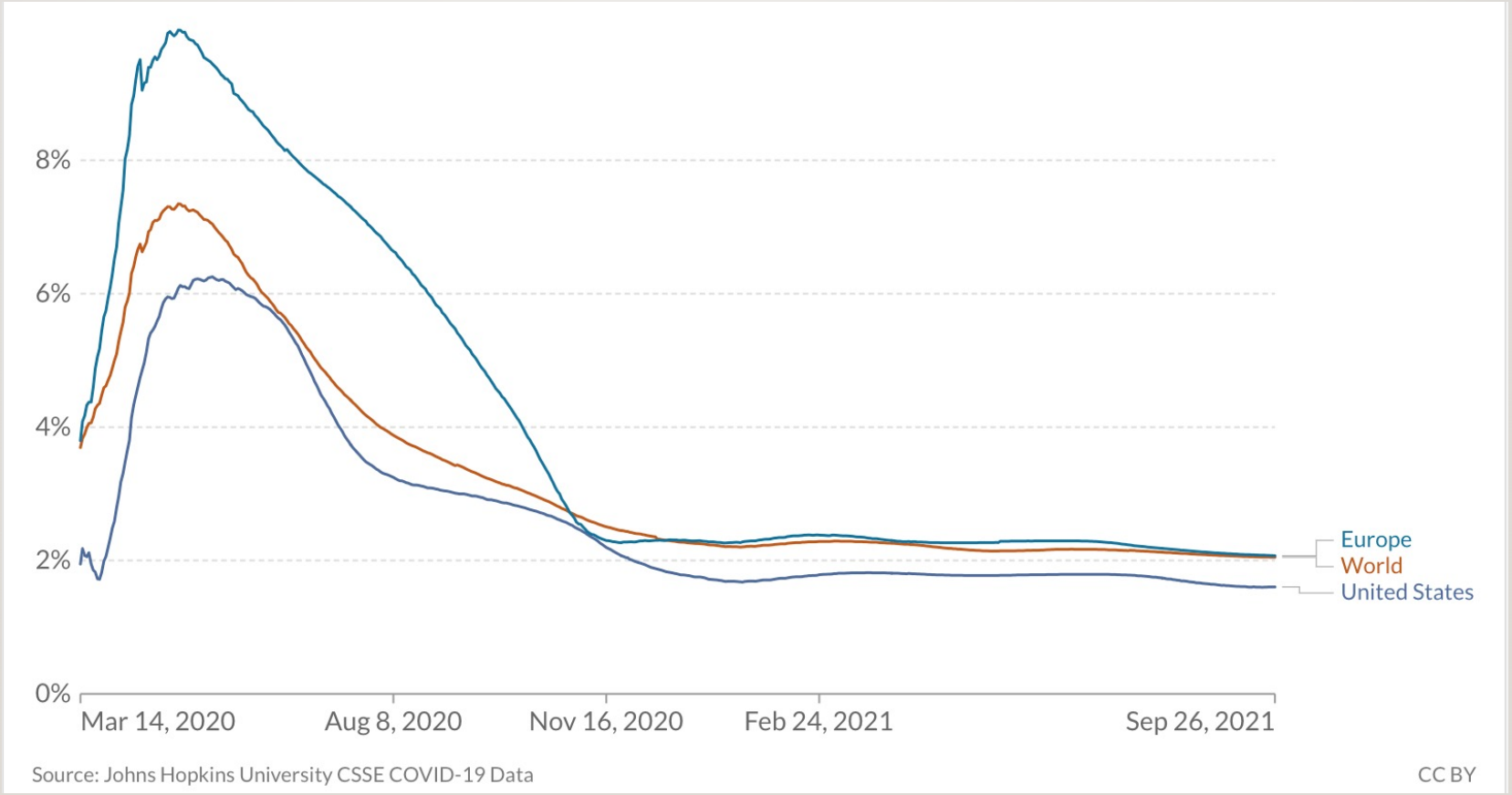
COVID-19 DEATHS UNDERREPORTED IN MOST AREAS

COUNTRY / CITY	TIME PERIOD	COVID-19 DEATHS	EXCESS DEATHS	EXCESS DEATHS PER 100K PEOPLE
Peru	Mar 22nd 2020-Sep 4th 2021	198,450	194,570	593
Bulgaria	Apr 19th 2020-Aug 28th 2021	18,690	36,510	525
North Macedonia	Mar 31st 2020-Jun 29th 2021	5,480	10,470	504
Russia	Mar 31st 2020-Jul 30th 2021	155,940	652,070	446
Serbia	Mar 31st 2020-Jul 30th 2021	7,100	30,810	445
Moldova	Mar 31st 2020-May 30th 2021	6,100	11,050	419
Lithuania	May 24th 2020-Aug 28th 2021	4,490	11,510	412
South Africa	Apr 11th 2020-Sep 3rd 2021	83,320	234,980	394
Paraguay	Jul 31st 2020-Jul 30th 2021	14,930	16,310	390
Mexico	Mar 29th 2020-Aug 7th 2021	244,400	485,980	386
Ecuador	Mar 22nd 2020-Aug 28th 2021	23,430	64,980	367
Belarus	Mar 31st 2020-Mar 30th 2021	2,250	33,690	358
Albania	May 31st 2020-Jun 29th 2021	2,420	10,090	354
Bolivia	Mar 31st 2020-Jun 29th 2021	16,760	40,200	352
Romania	Mar 29th 2020-Jul 24th 2021	34,220	65,250	338
Czech Republic	Mar 29th 2020-Jul 31st 2021	30,360	35,100	328
Poland	Mar 29th 2020-Aug 14th 2021	75,280	124,370	324
Slovakia	Sep 27th 2020-Jul 17th 2021	12,480	17,360	318
Montenegro	Jul 26th 2020-Apr 24th 2021	1,420	1,910	306

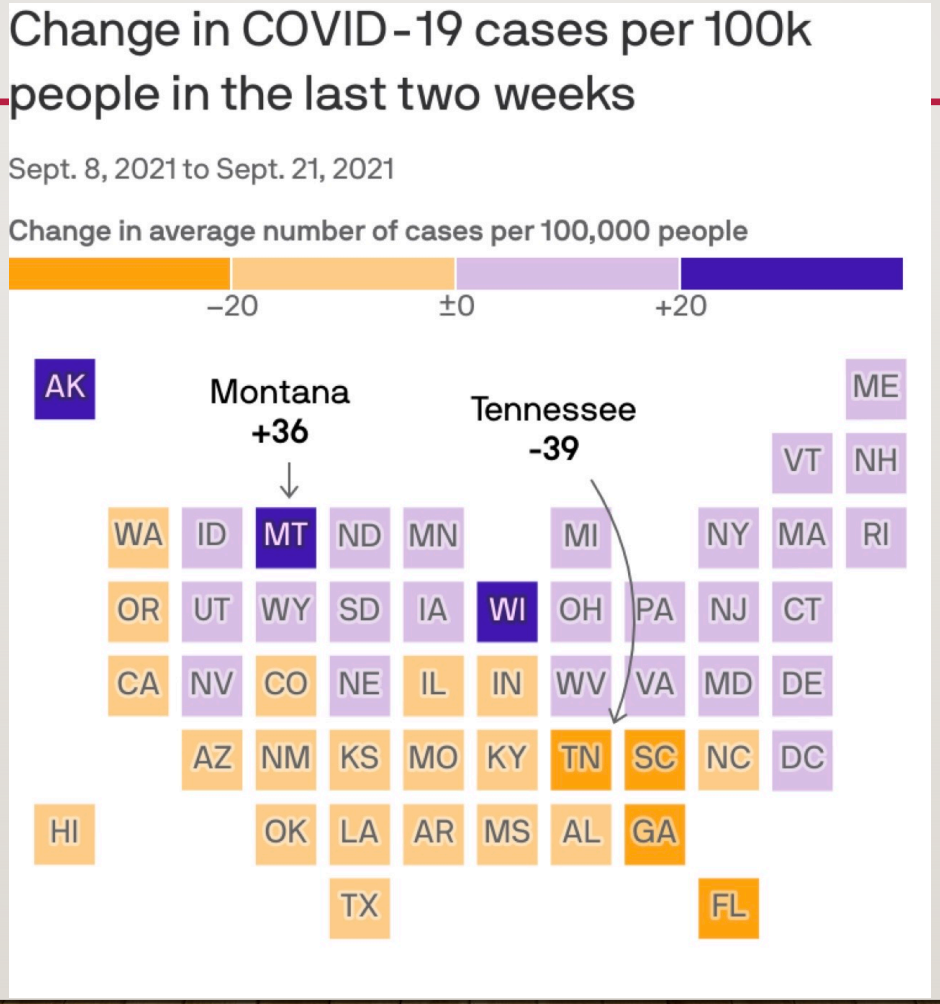
28 ->

Bosnia and Herzegovina	Mar 31st 2020-Mar 30th 2021	6,590	10,050	304
Hungary	Apr 5th 2020-Aug 14th 2021	30,000	28,200	289
Brazil	Feb 29th 2020-Jul 30th 2021	556,370	600,150	286
Colombia	Apr 5th 2020-Jul 10th 2021	112,790	135,850	270
Croatia	Apr 19th 2020-Jul 31st 2021	8,220	10,800	266
Ukraine	Mar 31st 2020-Jun 29th 2021	54,560	102,770	247
Kazakhstan	May 31st 2020-Jun 29th 2021	7,720	46,020	246
Italy	Mar 1st 2020-Jun 26th 2021	127,440	148,560	246
United States	Mar 7th 2020-Aug 20th 2021	613,860	788,900	241
Kosovo	Jun 30th 2020-Jun 29th 2021	2,210	4,260	227
Latvia	Oct 18th 2020-Aug 21st 2021	2,520	4,100	215
Spain	Mar 8th 2020-Aug 28th 2021	83,980	101,950	215
Portugal	Mar 22nd 2020-Aug 28th 2021	17,710	21,530	209
Egypt	Mar 31st 2020-May 30th 2021	15,050	194,260	194
Slovenia	Apr 5th 2020-Aug 21st 2021	4,410	3,970	189
Chile	Apr 5th 2020-Aug 21st 2021	36,620	33,010	188
Britain	Mar 13th 2020-Aug 12th 2021	131,110	121,510	179
Estonia	Apr 26th 2020-Sep 4th 2021	1,250	2,270	171
Belgium	Mar 15th 2020-Aug 21st 2021	25,320	19,270	169

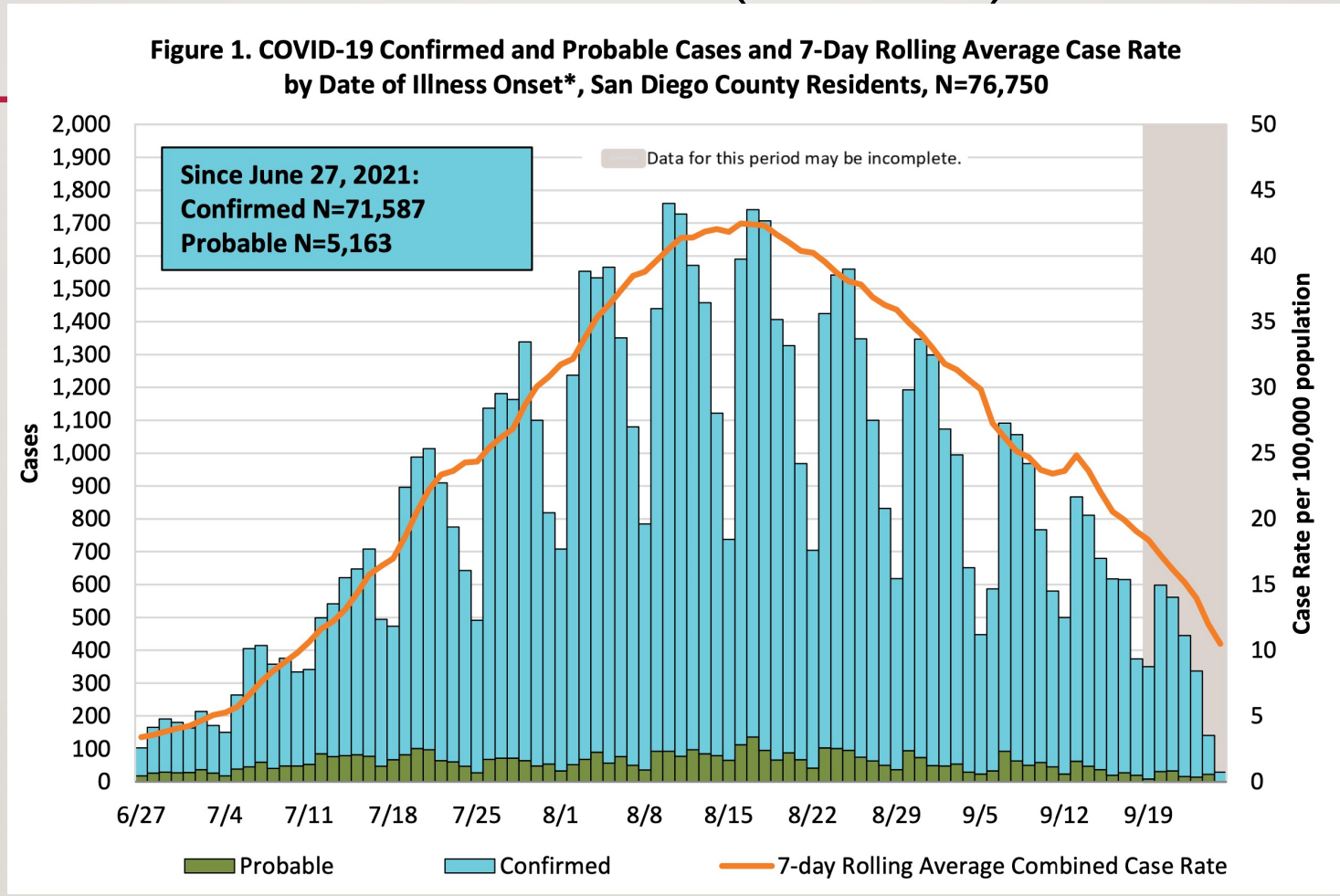
TREATING COVID-19 HAS IMPROVED



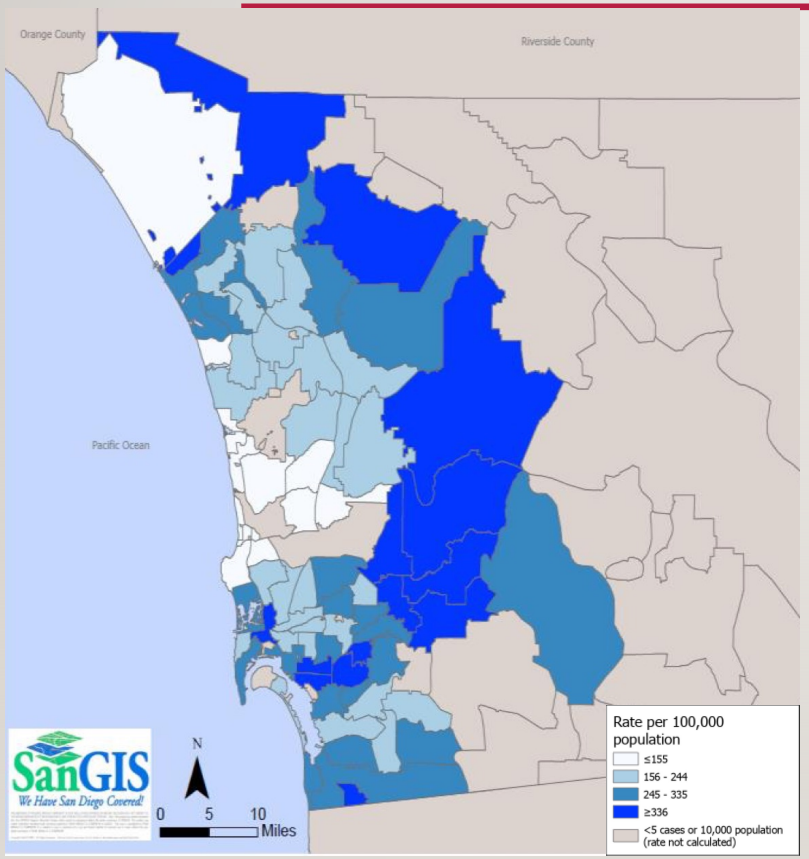
NATIONAL CHANGES IN COVID-19 NEW CASES

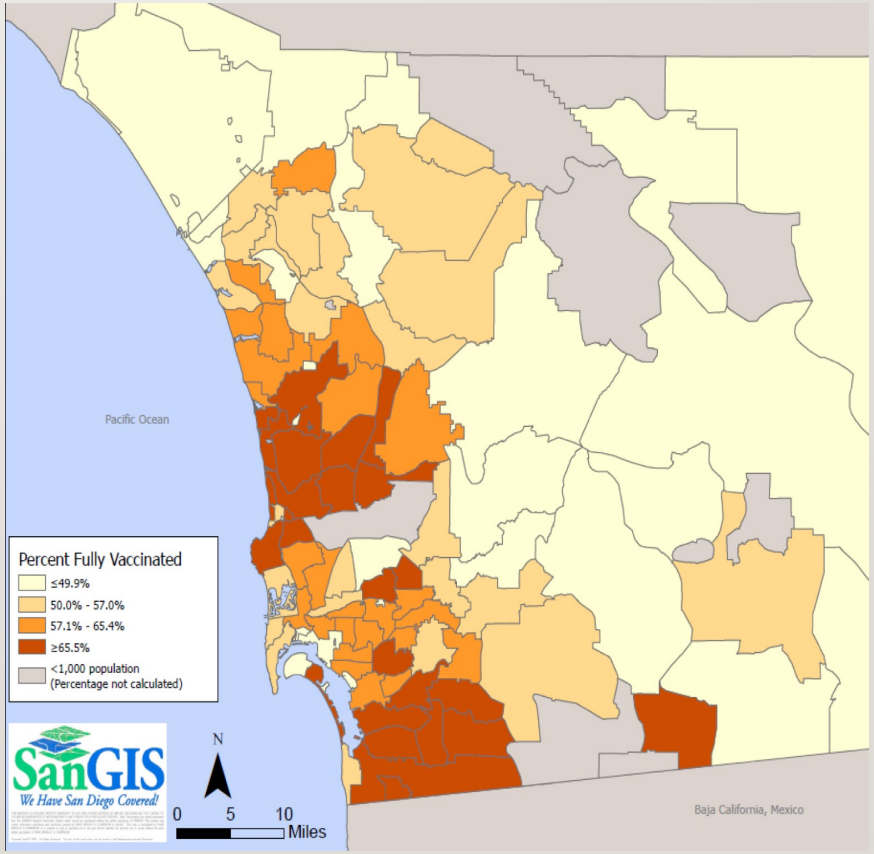


SAN DIEGO TODAY – DELTA (OR 3RD) SURGE WANING

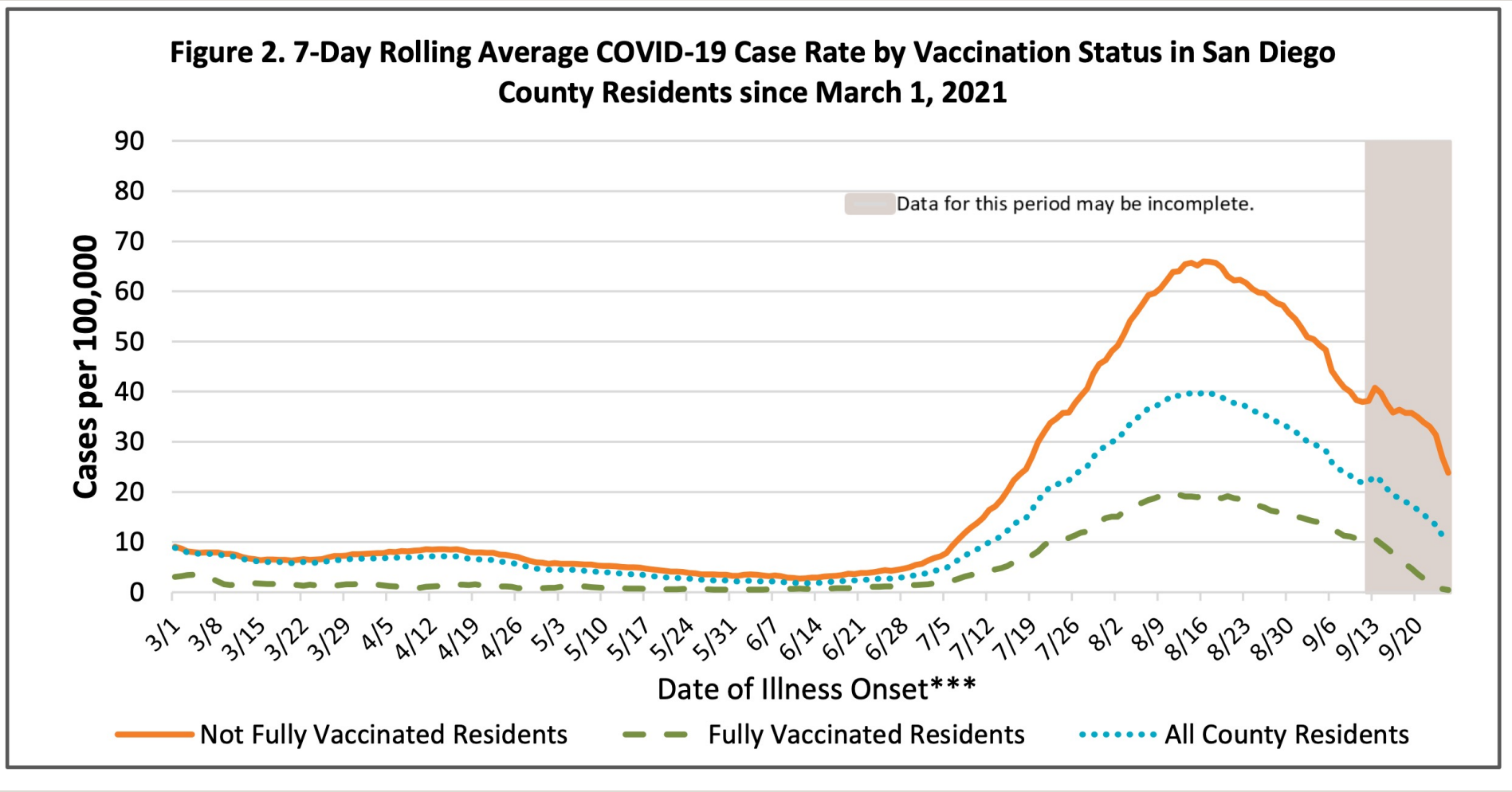


WHERE ARE CASES HAPPENING IN SD COMPARED TO VACCINATION STATUS?

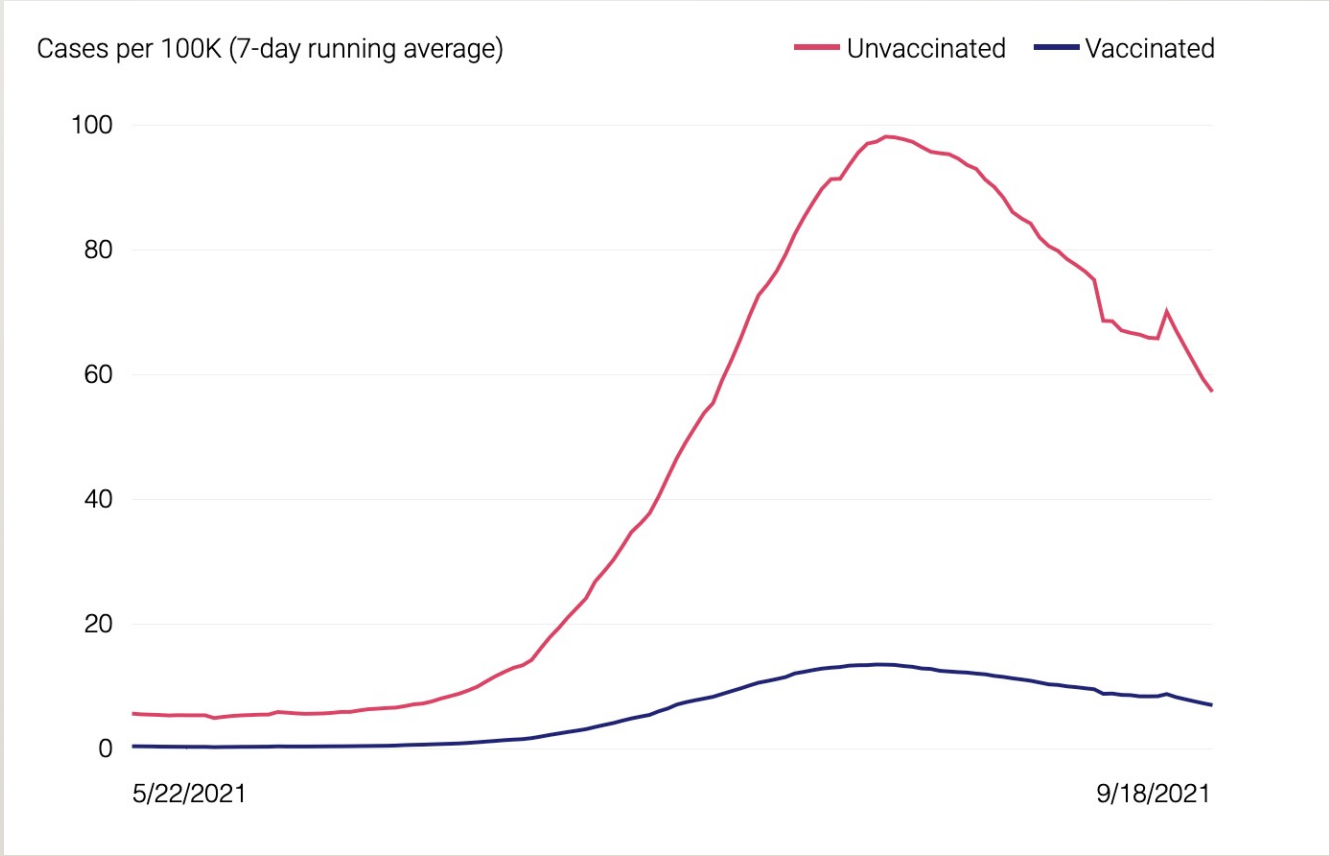




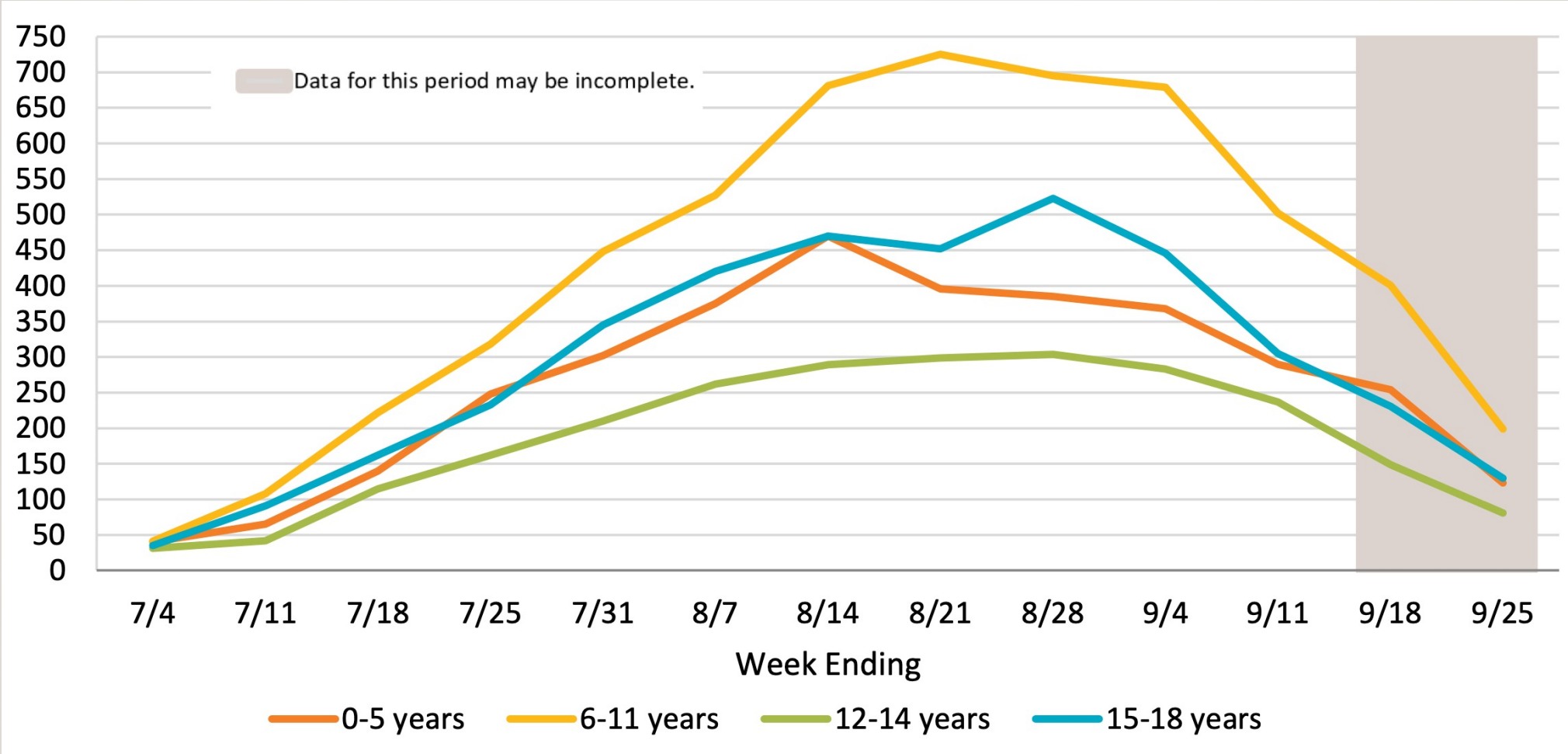
SAN DIEGO – UNVACCINATED 4 TIMES MORE INFECTIONS



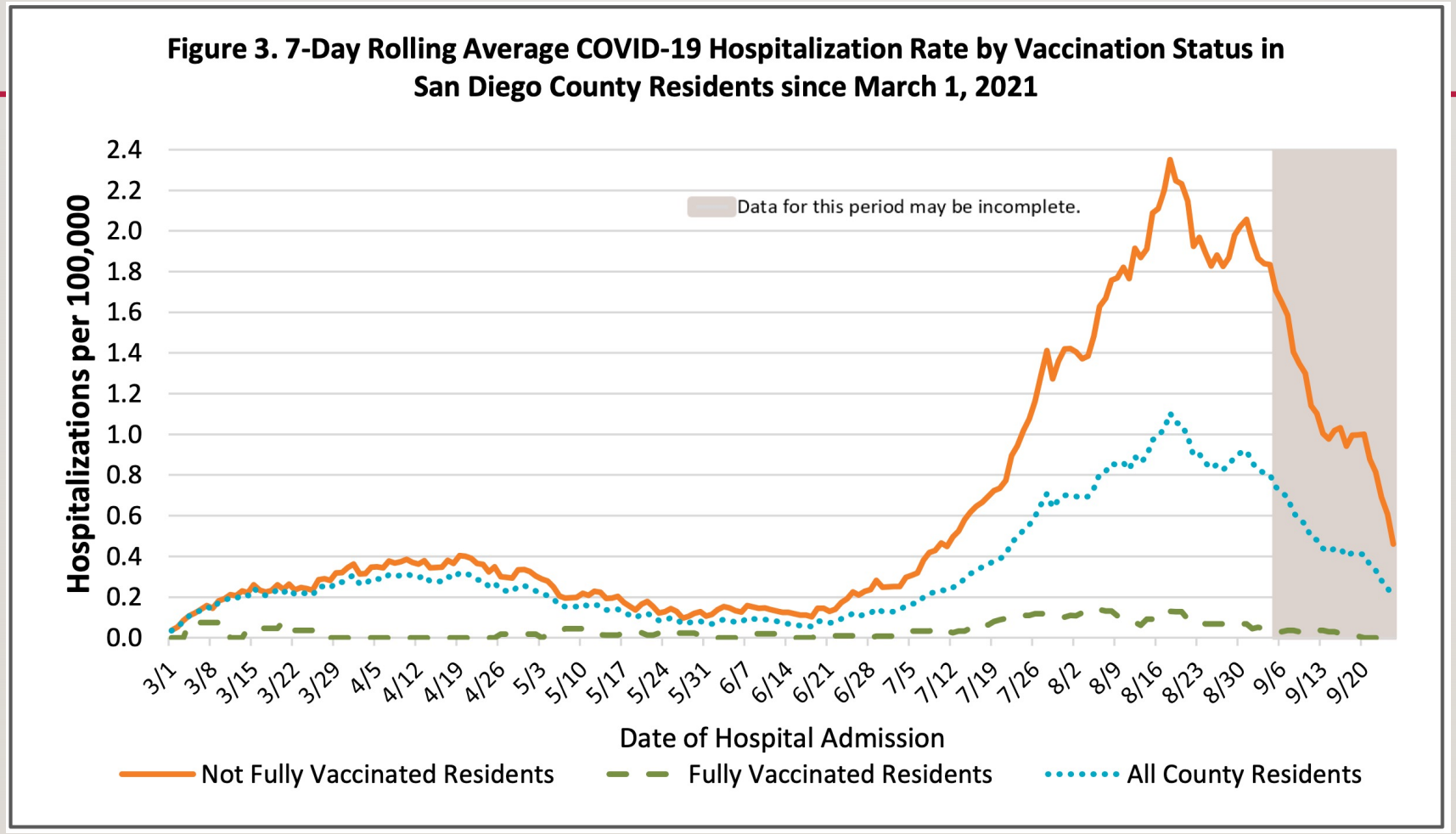
VACCINATION PREVENTING COVID-19 INFECTION US DATA



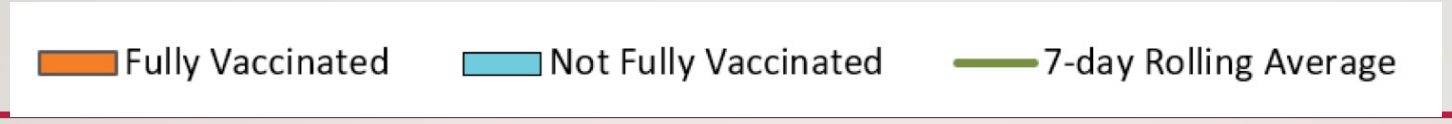
CASES IN CHILDREN IN SCHOOL SETTINGS

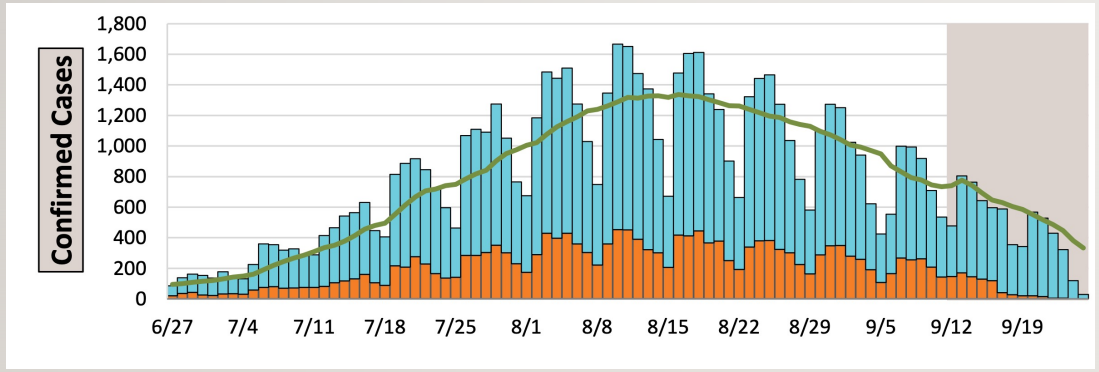


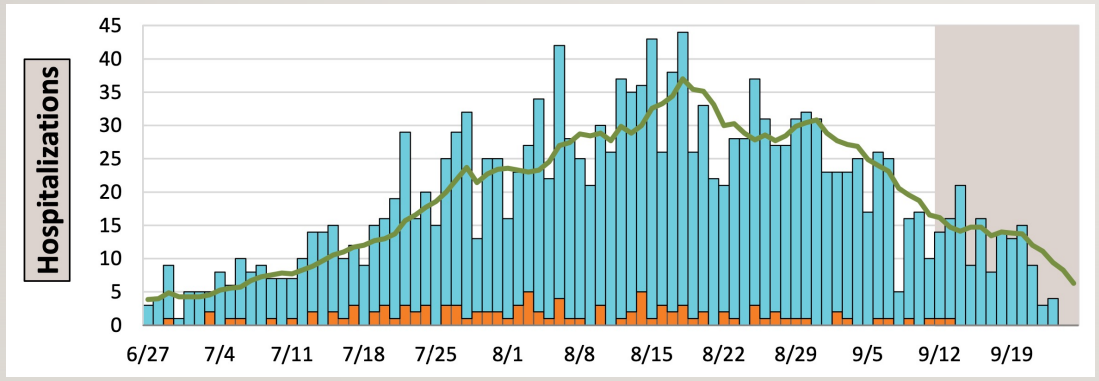
UNVACCINATED 46X MORE LIKELY TO BE HOSPITALIZED

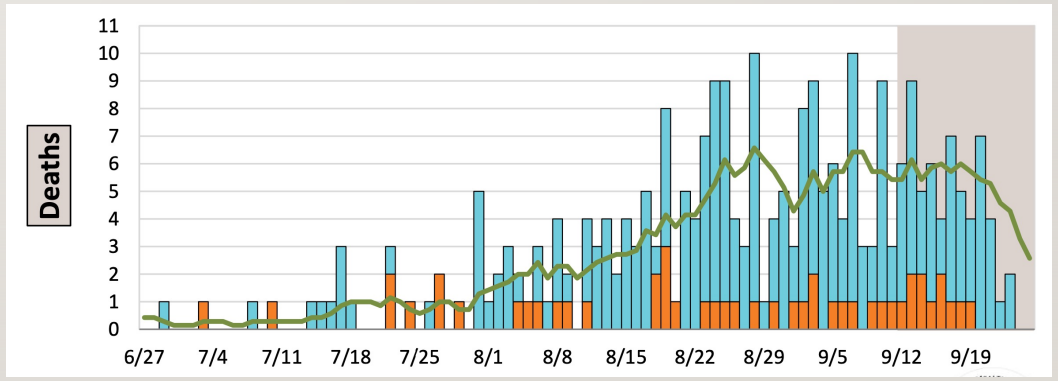


VACCINATED VS UNVACCINATED VISUALS









OUTCOMES VACCINATED VS UNVACCINATED

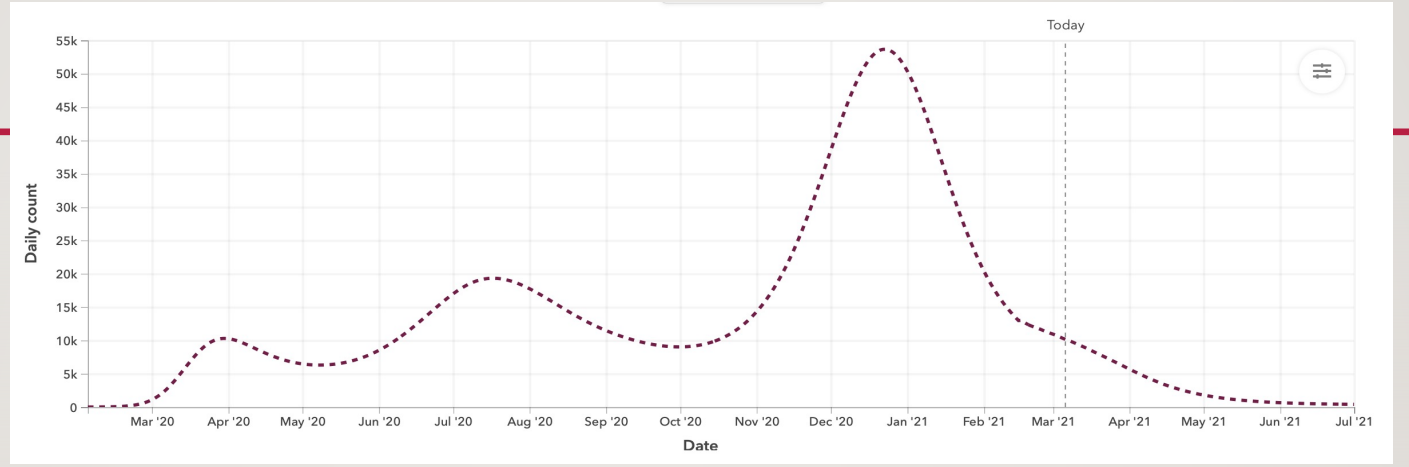
		Not Fully Vaccinated*		Fully Vaccinated**		All Cases
Since Jan. 1, 2021	**Total Confirmed Cases***	159,801	89.1%	19,500	10.9%	179,301
	Hospitalizations	6,905	98.1%	131	1.9%	7,036
	Deaths	1,450	96.6%	51	3.4%	1,501
	Age of Confirmed Cases					
	Median Age (Years)	32		42		33
	Age Range (Years)	0-100+		12-100+		0-100+

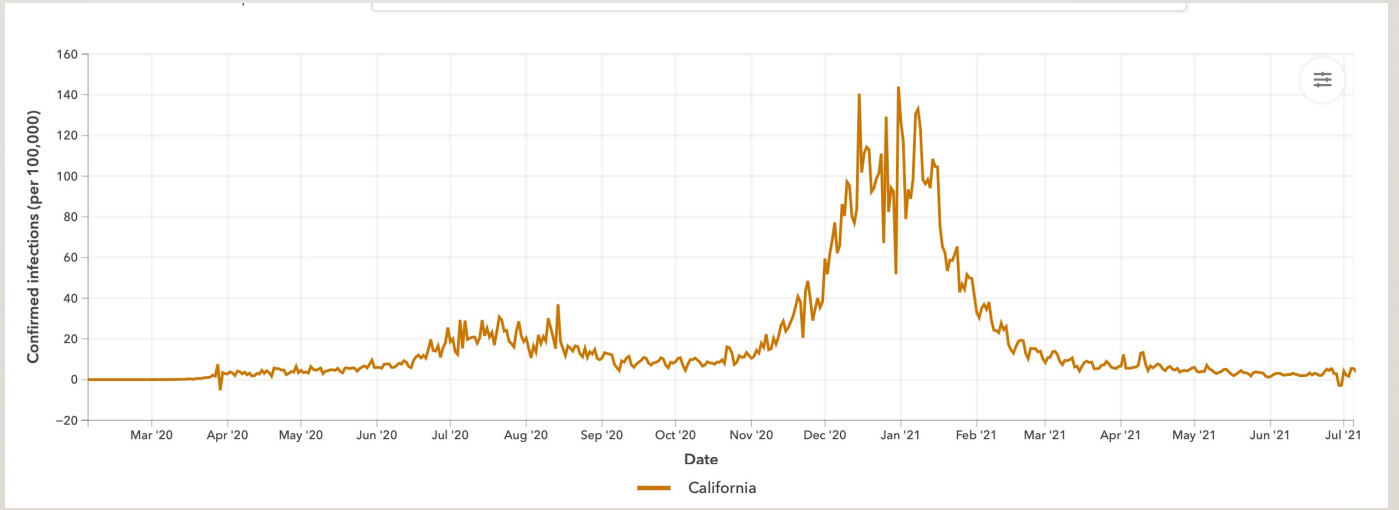
		Not Fully Vaccinated*		Fully Vaccinated**		All Cases
Last 30 Days (8/30/2021 – 9/28/2021)	**Total Confirmed Cases***	15,272	79.0%	4,066	21.0%	19,338
	Hospitalizations	370	97.9%	8	2.1%	378
	Deaths	30	83.3%	6	16.7%	36
	Age of Confirmed Cases					
	Median Age (Years)	30		43		33
	Age Range (Years)	0 – 100+		12 – 100+		0-100+

COST OF UNVACCINATED BEYOND LIVES

	June 2021	July 2021	August 2021	Total
New hospital admissions of adult patients with confirmed COVID-19	60,000	125,000	345,000	530,000
Estimated share of adults hospitalized with COVID-19 who were unvaccinated	86%	86%	86%	86%
Estimated number of unvaccinated adults hospitalized for COVID-19	51,000	108,000	297,000	456,000
Estimated share of hospitalizations primarily for COVID-19	75%	75%	75%	75%
Estimated number of unvaccinated adults hospitalized primarily for COVID-19	39,000	81,000	222,000	342,000
Estimated share of unvaccinated hospitalizations for COVID-19 that were preventable	84%	84%	84%	84%
Estimated number of preventable COVID-19 hospitalizations	**32,000**	**68,000**	**187,000**	**287,000**
Approximate cost per COVID-related hospital admission	$20,000	$20,000	$20,000	$20,000
Estimated preventable cost for unvaccinated COVID-related adult hospitalizations	**$0.6 Billion**	**$1.4 Billion**	**$3.7 Billion**	**$5.7 Billion**

PREDICTIVE MODELS – WHAT WAS PREDICTED IN MARCH





SAN DIEGO NEXT MONTH PREDICTION

California County Hospitalization Forecasts

Select a county to see how modeled number of hospitalizations compare with actual numbers to date and with the number of licensed hospital beds (black box).

San Diego

Current Daily Hospitalizations:

375 | 6,509

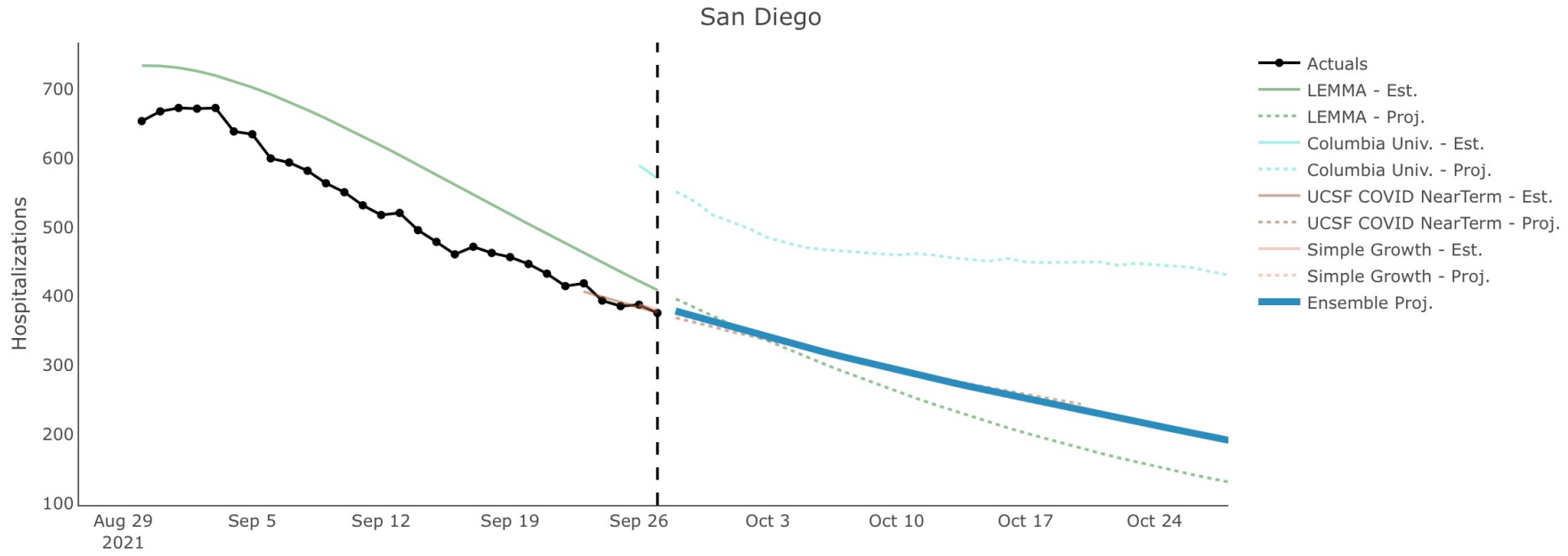
Actuals | Total Beds : 2021-09-27

Projected Daily Total:

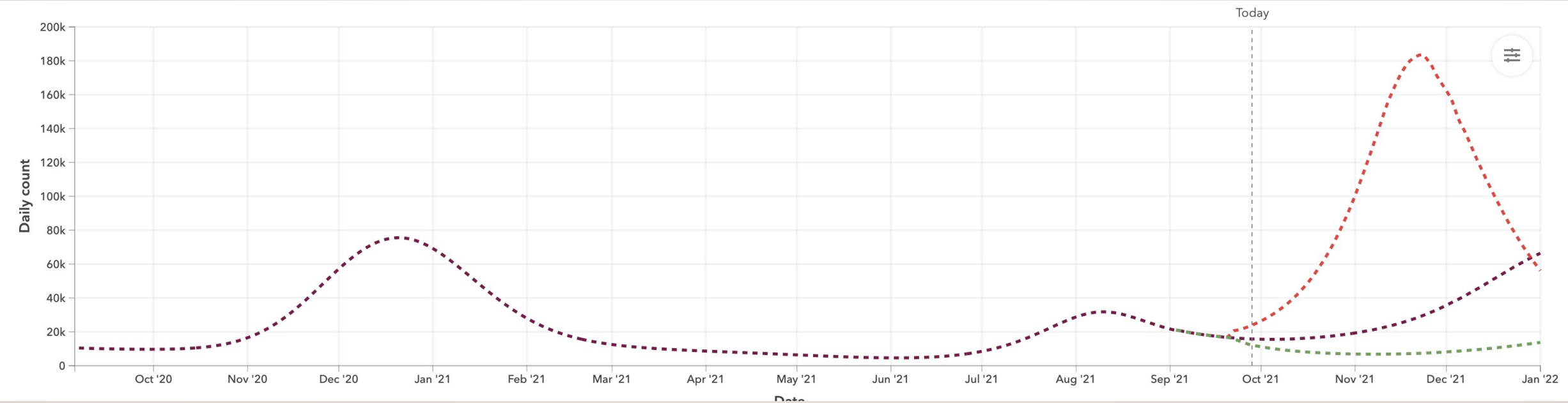
191

Ensemble Forecast through 2021-10-28

Download County Hospital Forecasts



WORST & BEST CASE PREDICTIONS THROUGH END OF YEAR



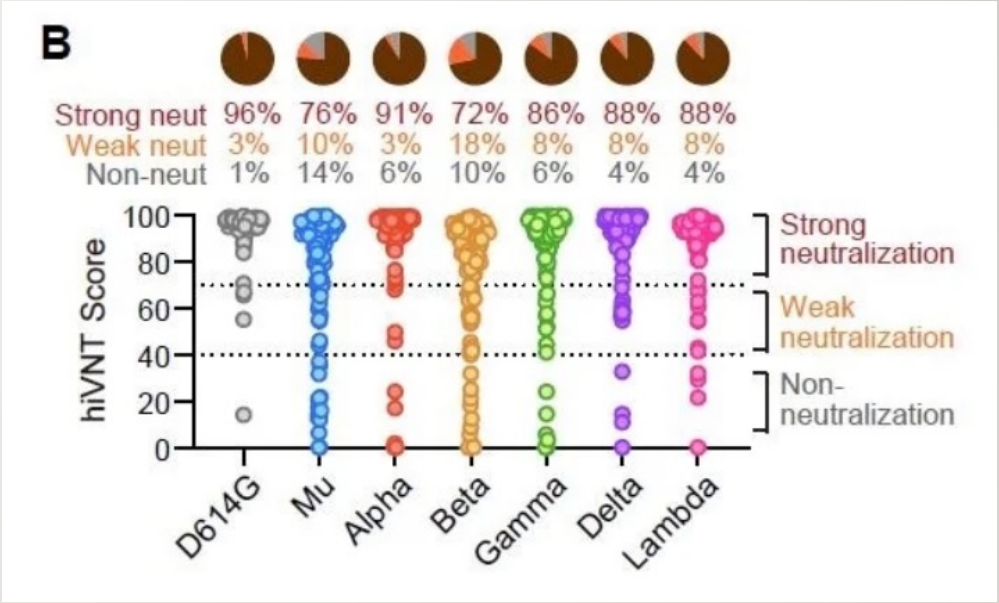
DELTA AND MU WON'T BE THE LAST VARIANTS

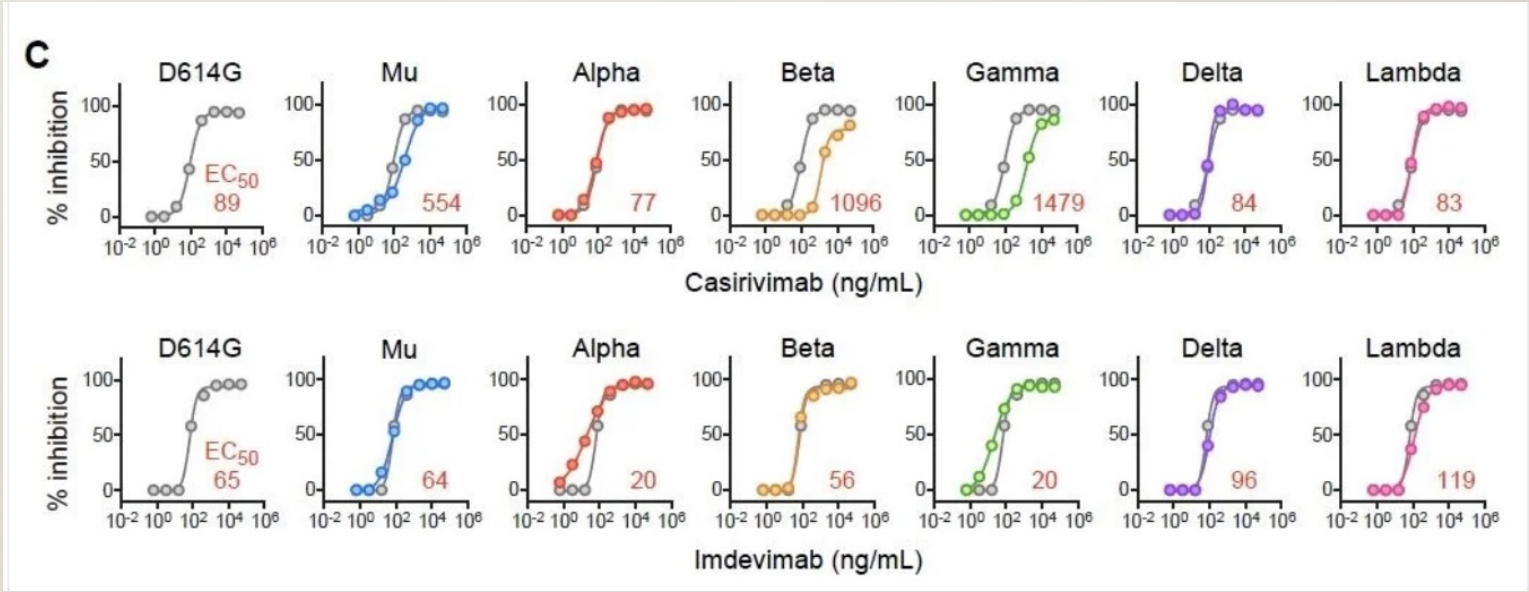
- Birth of Mu variant may have gone like this
  - In India, a person who was immunocompromised developed Covid-19.
  - Patient was slow to clear virus due to his impaired immune system
  - As the virus replicated, an error in the genetic translation occurred
  - Most mutations are detrimental and that copy of the virus fails to survive
  - However, this mutated virus spread through the host faster becoming dominant in the host
  - Host goes out in public or infects someone in their household with the new strain
  - Faster transmission of the new mutated virus (almost twice) spreads quicker than original virus, displacing the original virus as the dominant strain
- Thousands of strains have been identified, It is just a matter of time until a worse one comes along, perhaps truly vaccine resistant.
- Stopping transmission with known variants is best way to prevent the doomsday mutation – and the best way to do that now is vaccination, masks, and appropriate isolation.

Credit to National Geographic, Landau, Sept 17, 2021

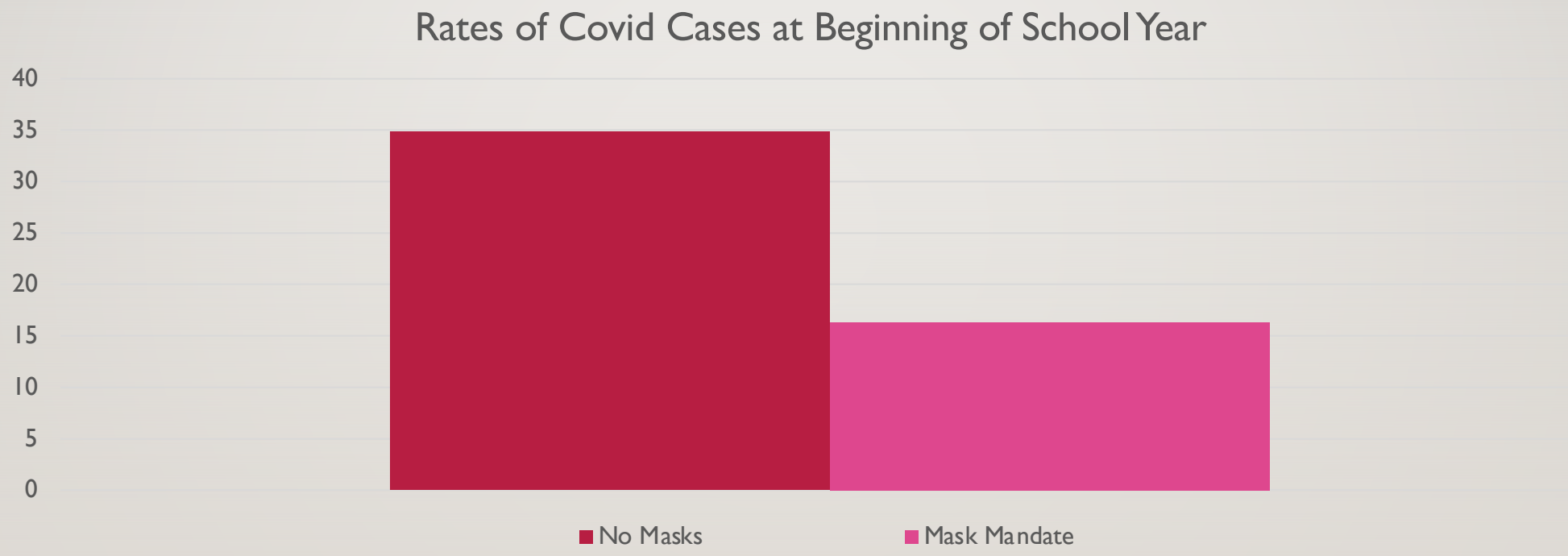
MU VARIANT

- Identified in Columbia in January 2021
  - B.1.621
- Pfizer 76% effective
- Monoclonal antibody infusion – effectively neutralized variant



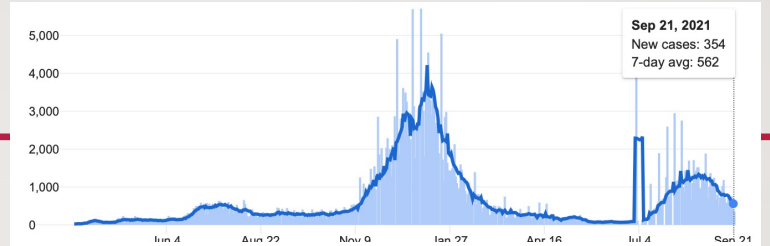


MASKS

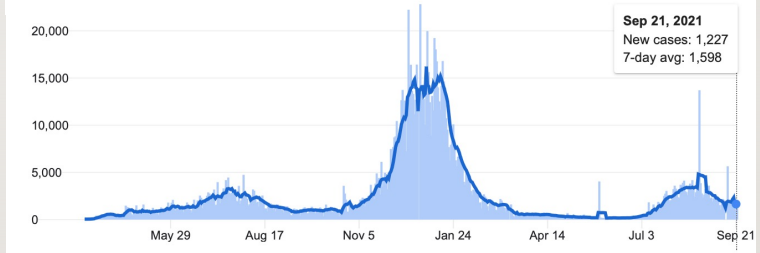

Rates of Covid Cases at Beginning of School Year
40
35
30
25
20
15
10
5
0
No Masks
Mask Mandate

CALIFORNIA EXPERIENCE – MASK MANDATES VS NONE

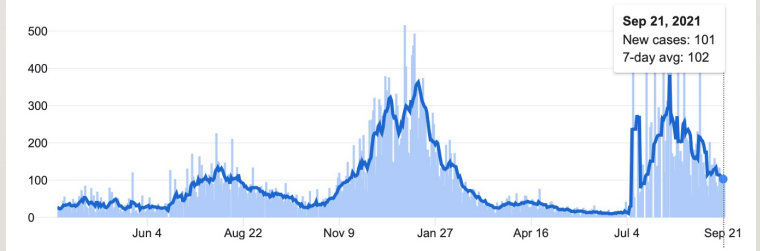
SD - no mask



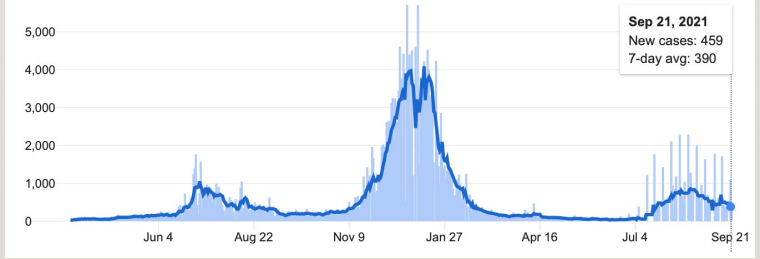
LA - mask



SF - mask



Orange - no mask



MASKS

- Masks work
- Vaccine > N95 > surgical mask > cloth mask
- Unvaccinated – besides getting vaccinated – wear masks indoors and in crowds at all times
- Vaccinated – during high rates of community spread, wearing masks indoors supported due to increased rate of breakthrough and reduced but still potential spread to others in case of breakthrough

SURFACE TRANSMISSION

- The risk of getting covid-19 from contaminated surface is low – estimated to be 1:10,000
- Covid-19 can live on surfaces for up to 3 days, but risk is considered minimal if area is ventilated and wiped down after 24 hours
- Surface Covid-19 reduced wearing masks indoors, along along with ventilation
- Be smart, keep surfaces clean and disinfected, but focus on reducing respiratory droplets

ADDITIONAL DOSES AND BOOSTER VACCINES

- Additional Pfizer or Moderna dose for immunocompromised patients at least 28 days after second dose. Continue same manufacturer, no mix and match.
- Booster for those that received Pfizer Covid-19
  - 65 and older or residents in long term care settings
  - 18 and older with underlying medical high risk medical conditions (cancer, diabetes, lung disease, heart disease). (50 to 65 should, 18 to 49 may)
  - 18 and older in job with increased risk of exposure
- Recommendations for Moderna and J&J booster expected soon and to be similar to Pfizer

COVID-19 TREATMENTS

- Regeneron for unvaccinated and breakthrough infections – given early in infection non-hospitalized patients
  - Reduces risk of hospitalization and death, reduces symptomatic time, and reduces viral load
- In hospitalized patients requiring O2 Dexamathosone plus Remdesivir is standard
- Oral Antivirals
  - Merck asking for Emergency Use Authorization of Molnupiravir
    - 50% decrease in need for hospitalization, 100% decrease in deaths
    - Pfizer and Appili also developing SARS-CoV-2 antiviral – not as far along in trials

WHAT'S THE STORY WITH UNPROVEN TREATMENTS?

- Hydroxychloroquine – early in Covid reports that hydroxychloroquine inhibited SARS coronavirus infection in cells
  - Cell cultures ≠ Human response
  - Multiple studies since have shown no added benefit in human trials
- Ivermectin – studies showed in inhibit replication of SARS-CoV-2 in high concentrations
  - Concentrations required are far higher than can be given to humans without toxicity
  - At non-toxic dosing for humans, Ivermectin has not been shown to have any benefit
  - Toxicity related morbidity from ivermectin overdoses have far exceeded anything seen with vaccines

SUMMARY AND PREDICTIONS

- We are on the downswing of San Diego's third major surge of Covid-19, latest due to Delta variant and inadequate vaccination levels
- Getting children 5 and older vaccinated, getting boosters for those vaccinated early and with underlying conditions, continuing to expand total vaccination and the new oral therapies are our best chance to prevent another huge surge over the winter.
- If we let our guard down, we will most certainly have a 4th surge and could be even larger than last winter's surge. New strains are an unknown variable.
- SARS-CoV-2 is still in epidemic/pandemic mode. Will eventually settle into endemic
  - Covid-19 is with us for the long term. Booster vaccination and improved treatments will be key in the future