

Table S1. Data from and calculations for excess mortality from CCP hesitancy based on the OWID database.

Week	Plasma Doses	Deaths	Hospitalized Patients	Admissions	Plasma Doses Per Patient	Mortality (Deaths / Admissions - 2 Week Shift)
7/18/2020	11231	5559	38045	21481	0.52	0.37
7/25/2020	12919	6513	42802	33434	0.39	0.22
8/1/2020	11724	7855	49972	38256	0.31	0.19
8/8/2020	10511	7421	41313	33153	0.32	0.20
8/15/2020	10495	7126	38655	31543	0.33	0.20
8/22/2020	9218	6711	34466	30226	0.30	0.19
8/29/2020	8968	6309	31031	29776	0.30	0.17
9/5/2020	8424	5855	28242	27010	0.31	0.20
9/12/2020	7894	5124	26237	28351	0.28	0.19
9/19/2020	9647	5348	25382	23924	0.40	0.21
9/26/2020	11670	5439	25915	24867	0.47	0.21
10/3/2020	11101	4939	27804	27575	0.40	0.19
10/10/2020	14796	5172	31370	33658	0.44	0.17
10/17/2020	16401	5222	34934	37027	0.44	0.16
10/24/2020	17827	5812	39899	40935	0.44	0.18
10/31/2020	18628	6012	45983	46467	0.40	0.18
11/7/2020	19205	7303	55640	56877	0.34	0.20
11/14/2020	26176	8156	69432	70999	0.37	0.15
11/21/2020	28076	11119	81702	81834	0.34	0.20
11/28/2020	28688	10814	92351	86841	0.33	0.21
12/5/2020	27350	16033	98549	94573	0.29	0.20
12/12/2020	25706	17907	107227	101624	0.25	0.16
12/19/2020	29842	19238	112272	104959	0.28	0.22
12/26/2020	24350	16363	118892	106311	0.23	0.22
1/9/2021	30576	23074	126420	116363	0.26	0.19
1/16/2021	28946	23726	120658	108721	0.27	0.20
1/23/2021	25395	21843	106881	93972	0.27	0.22
1/30/2021	20226	22152	91286	80589	0.25	0.22
2/6/2021	18913	20667	77709	69080	0.27	0.19
2/13/2021	12303	17346	63237	55607	0.22	0.25
2/20/2021	8369	13155	53512	46421	0.18	0.25
2/27/2021	8429	13706	44799	41727	0.20	NA
3/6/2021	6006	11791	NA	32075	0.19	NA

Table S2. Replicate excess death calculations based on OWID database.

	Scenario 1		Scenario 2		Scenario 3	
Transfused	38.90%		50%		0%	
Week	Expected Deaths	Difference	Expected Deaths	Difference	Expected Deaths	Difference
8/1/2020	3974.94	3880.06	3625.35	4229.65	5332.66	1707.31
8/8/2020	6186.78	1234.22	5642.66	1778.34	8299.99	2657.33
8/15/2020	7079.06	46.94	6456.47	669.53	9497.05	3040.59
8/22/2020	6134.78	576.22	5595.23	1115.77	8230.23	2635.00
8/29/2020	5836.86	472.14	5323.51	985.49	7830.55	2507.04
9/5/2020	5593.16	261.84	5101.24	753.76	7503.60	2402.36
9/12/2020	5509.89	-385.89	5025.30	98.70	7391.89	2366.60
9/19/2020	4998.05	349.95	4558.48	789.52	6705.23	2146.75
9/26/2020	5246.20	192.80	4784.80	654.20	7038.14	2253.34
10/3/2020	4427.00	512.00	4037.65	901.35	5939.13	1901.48
10/10/2020	4601.50	570.50	4196.80	975.20	6173.23	1976.43
10/17/2020	5102.60	119.40	4653.83	568.17	6845.49	2191.66
10/24/2020	6228.23	-416.23	5680.46	131.54	8355.60	2675.14
10/31/2020	6851.64	-839.64	6249.05	-237.05	9191.95	2942.91
11/7/2020	7574.80	-271.80	6908.60	394.40	10162.11	3253.51
11/14/2020	8598.46	-442.46	7842.24	313.76	11535.43	3693.20
11/21/2020	10524.78	594.22	9599.13	1519.87	14119.72	4520.58
11/28/2020	13137.97	-2323.97	11982.50	-1168.50	17625.50	5643.00
12/5/2020	15142.93	890.07	13811.12	2221.88	20315.29	6504.17
12/12/2020	16069.45	1837.55	14656.16	3250.84	21558.28	6902.12
12/19/2020	17500.21	1737.79	15961.09	3276.91	23477.75	7516.66
12/26/2020	18804.96	-2441.96	17151.08	-788.08	25228.16	8077.08
1/9/2021	19422.09	3651.91	17713.93	5360.07	26056.07	8342.14
1/16/2021	19672.27	4053.73	17942.11	5783.89	26391.71	8449.60
1/23/2021	21532.33	310.67	19638.58	2204.42	28887.11	9248.53
1/30/2021	20118.22	2033.78	18348.84	3803.16	26989.99	8641.15
2/6/2021	17389.00	3278.00	15859.65	4807.35	23328.55	7468.89
2/13/2021	14912.55	2433.45	13601.01	3744.99	20006.22	6405.21
2/20/2021	12782.87	372.13	11658.63	1496.37	17149.11	5490.48
2/27/2021	10289.77	3416.23	9384.79	4321.21	13804.44	4419.64
3/6/2021	8589.95	3201.05	7834.47	3956.53	11524.01	3689.54
Excess Deaths		28904.69		57913.24		141669.44

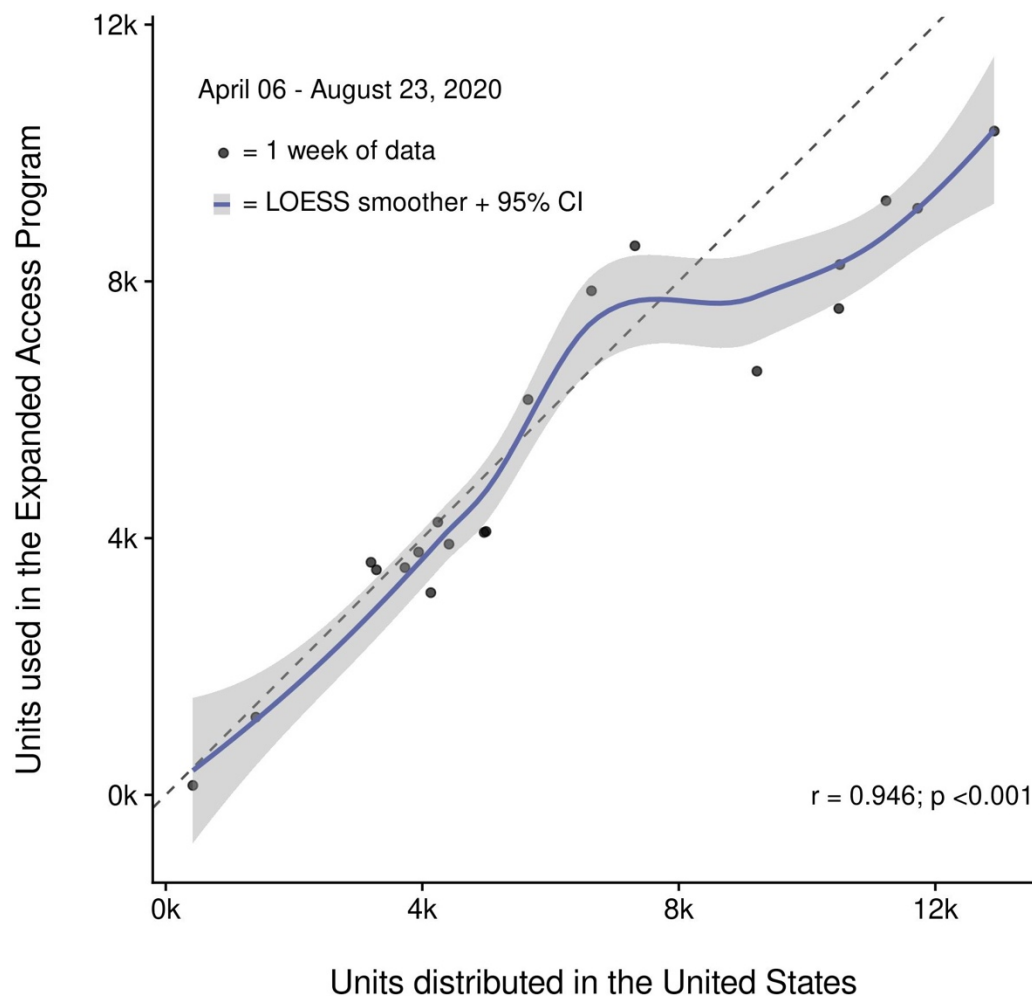
Table S3. Mortality of COVID-19 in USA CCP efficacy studies.

Study	Location	Type	Mortality		Relative risk of death with plasma	Reference
			CCP	Control		
Salazar et al.	Houston, TX	Matched Cohort Design	6.2	12.5	0.50	²⁵
Liu et al.	New York City	Matched Cohort Design	12.8	24.4	0.52	⁸
Shenoy et al.	Washington, DC	Matched Cohort Design	25	27	0.93	⁵⁰
Donato et al.	New Jersey	Matched Cohort Design	11.1	27.1	0.41	⁵¹
Yoon et al.	New York City	Matched Cohort Design	32.8	37.5	0.87	⁵²
O'Donnell et al.	New York City	Double Blind Randomized Controlled	12.6	24.6	0.51	⁵³
Sostin et al.	Hartford, CT	Matched Cohort Design	20	24.6	0.81	⁵⁴
Sturek et al.	Charlottesville, VA	Matched Cohort Design	6.9	10.4	0.66	⁵⁵
Average			15.9	23.5	0.68	

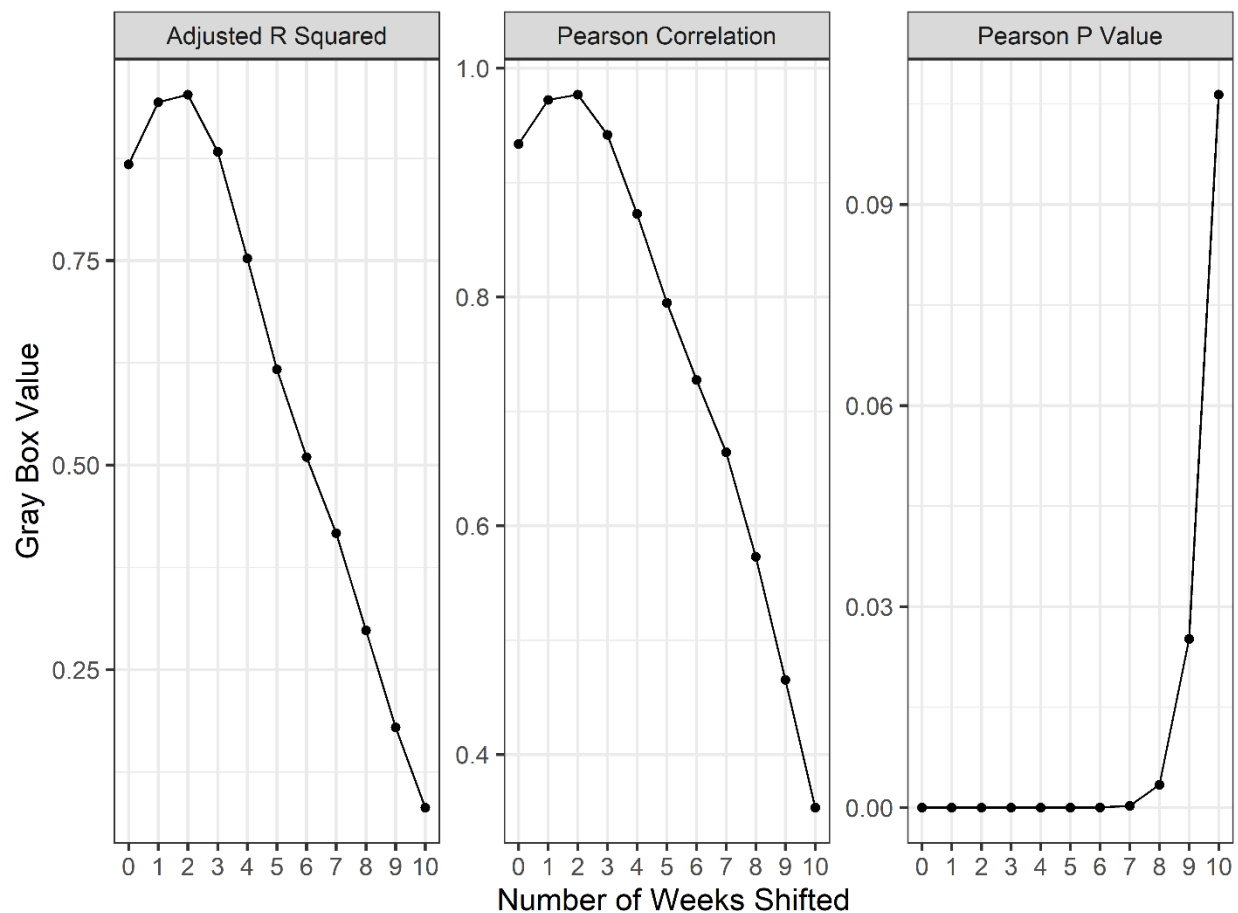
Table S4. Data from and calculations for excess mortality from CCP hesitancy based on the CDC database.

Starting date for seven-day period for Hospitalizations	Starting date for seven-day period for deaths	Plasma Distributions	Deaths	Hospitalizations	Plasma Doses Per Patient	Mortality (Deaths / Admissions - 2 Week Shift)
2020-08-03	2020-08-17	10511	6854	31448	0.3342343	0.2179471
2020-08-10	2020-08-24	10495	6395	29914	0.3508391	0.2137795
2020-08-17	2020-08-31	9218	5894	28841	0.3196144	0.2043618
2020-08-24	2020-09-07	8968	5154	28335	0.3164990	0.1818952
2020-08-31	2020-09-14	8424	5316	25850	0.3258801	0.2056480
2020-09-07	2020-09-21	7894	5301	24432	0.3231009	0.2169695
2020-09-14	2020-09-28	9647	4854	22795	0.4232068	0.2129414
2020-09-21	2020-10-05	11670	4905	23851	0.4892877	0.2056518
2020-09-28	2020-10-12	11101	4895	26365	0.4210506	0.1856628
2020-10-05	2020-10-19	14796	5592	32198	0.4595316	0.1736754
2020-10-12	2020-10-26	16401	5775	35493	0.4620911	0.1627081
2020-10-19	2020-11-02	17827	6651	39595	0.4502336	0.1679758
2020-10-26	2020-11-09	18628	8482	45067	0.4133401	0.1882087
2020-11-02	2020-11-16	19205	10447	54855	0.3501048	0.1904475
2020-11-09	2020-11-23	26176	10158	69243	0.3780310	0.1467007

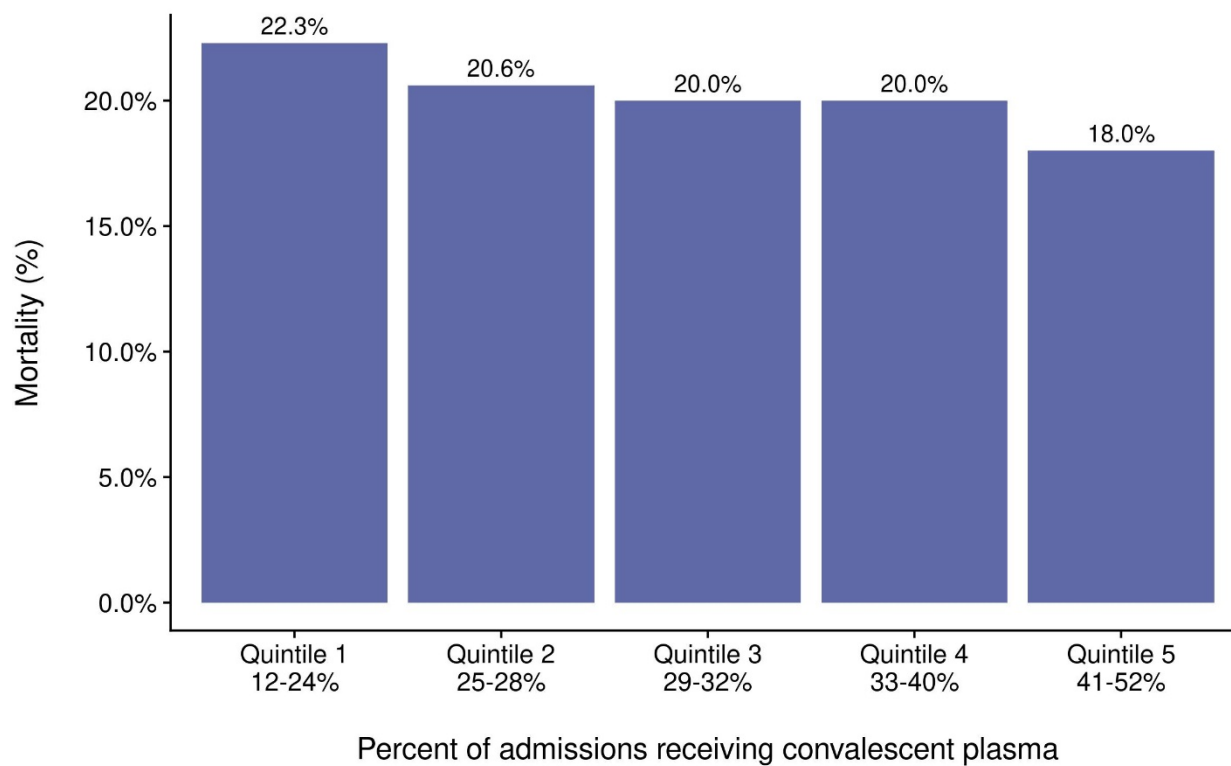
Starting date for seven-day period for Hospitalizations	Starting date for seven-day period for deaths	Plasma Distributions	Deaths	Hospitalizations	Plasma Doses Per Patient	Mortality (Deaths / Admissions - 2 Week Shift)
2020-11-16	2020-11-30	28076	15177	80036	0.3507921	0.1896272
2020-11-23	2020-12-07	28688	17031	84937	0.3377562	0.2005133
2020-11-30	2020-12-14	27350	18634	92813	0.2946785	0.2007693
2020-12-07	2020-12-21	25706	15526	99678	0.2578904	0.1557616
2020-12-14	2020-12-28	29842	18425	102606	0.2908407	0.1795704
2020-12-21	2021-01-04	24350	22605	103921	0.2343126	0.2175210
2020-12-28	2021-01-11	25475	23334	109965	0.2316646	0.2121948
2021-01-04	2021-01-18	30576	21711	114279	0.2675557	0.1899824
2021-01-11	2021-01-25	28946	21978	106434	0.2719620	0.2064942
2021-01-18	2021-02-01	25395	20351	92383	0.2748882	0.2202894
2021-01-25	2021-02-08	20226	17991	79549	0.2542584	0.2261625
2021-02-01	2021-02-15	18913	13455	67999	0.2781364	0.1978706
2021-02-08	2021-02-22	12303	13553	54321	0.2264870	0.2494984
2021-02-15	2021-03-01	8369	11938	45664	0.1832735	0.2614313
2021-02-22	2021-03-08	8429	8152	40635	0.2074320	0.2006152



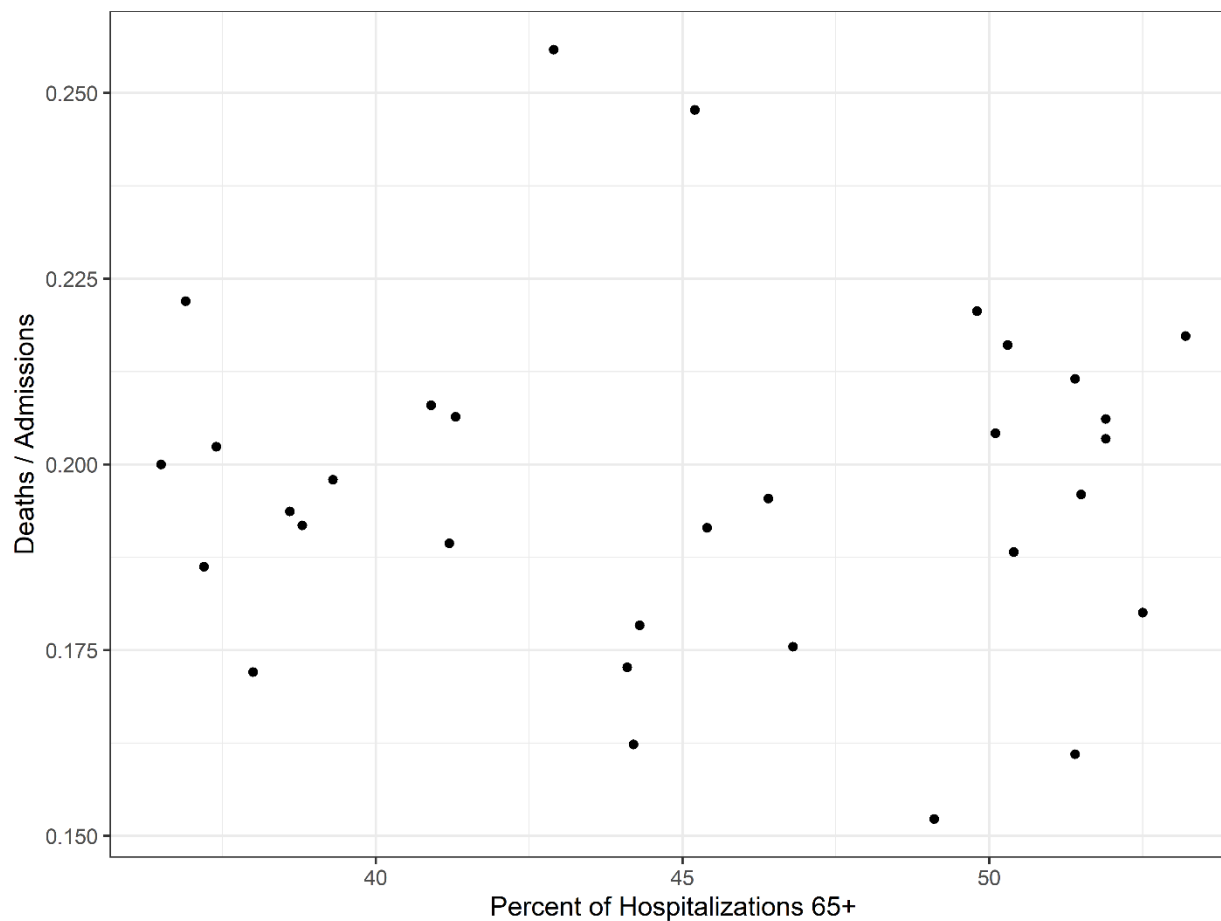
Supplementary Figure 1. Correlation of convalescent plasma distribution and usage within the Expanded Access Program. Shown is the progressive increase in the number of convalescent plasma units distributed in the United States and convalescent plasma units used in the Expanded Access Program (EAP). Data between April 06 and August 23, 2020 are pooled in weekly intervals and represented as filled circles. The Pearson correlation coefficient was used to assess correlation ($r = 0.946$, $P < 0.001$) and a LOESS smoother with a 95% confidence interval (CI) and a reference line were overlaid. Points below the reference line represent weeks where more convalescent plasma was distributed than used within the EAP. Conversely, points above the reference line are indicative of more convalescent plasma being used in the EAP than distributed.



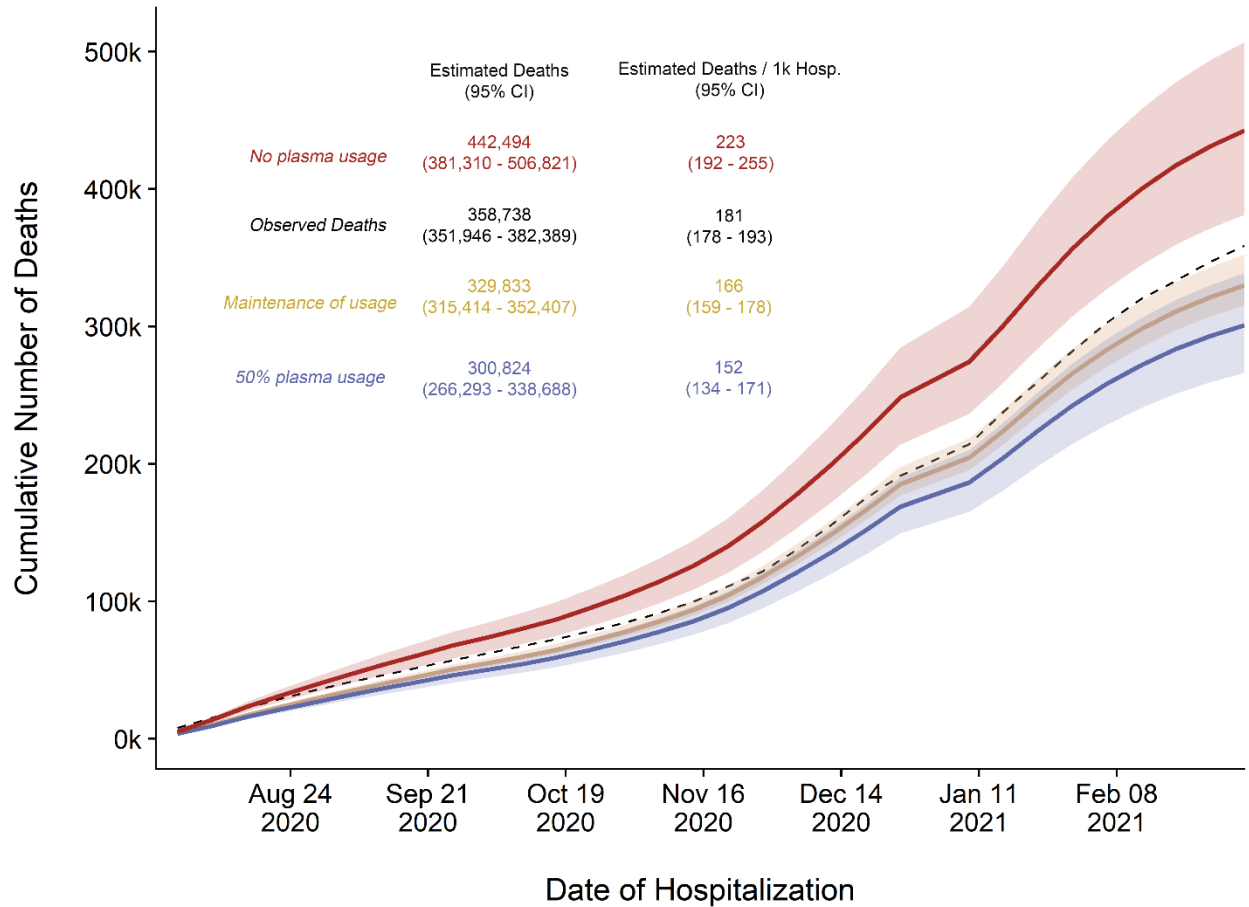
Supplemental Figure 2. A series of linear regressions and Pearson’s correlation tests comparing weekly reported deaths to new weekly hospital admissions, offset by various numbers of weeks to identify the length of lag between admission and death of patients. Y axes values reflect the parameter of each gray box throughout the shifted weeks. Correlations peak at 2-3 weeks shifted, suggesting the lag time between admission and reported death is roughly two weeks



Supplemental Figure 3. Mortality from COVID-19 by quintile of percent of admissions receiving CCP.



Supplemental Figure 4. Investigation of high age group mortality. The shifted mortality is compared to the percent of hospitalized patients 65+ each week as reported by the CDC. There is no significant correlation between the two variables, suggesting changes in mortality are not explainable by an increase in hospitalized high risk patients.



Supplemental Figure 5. Replicated cumulative excess deaths analysis per OWID database for scenario 1 (orange) : Maintained plasma transfusion rate from Oct-Nov throughout period, scenario 2 (blue): 50% transfusion rate throughout period, and scenario 3 (red): 0% transfusion rate throughout period. Black dashed line represents observed cumulative deaths per OWID reporting.